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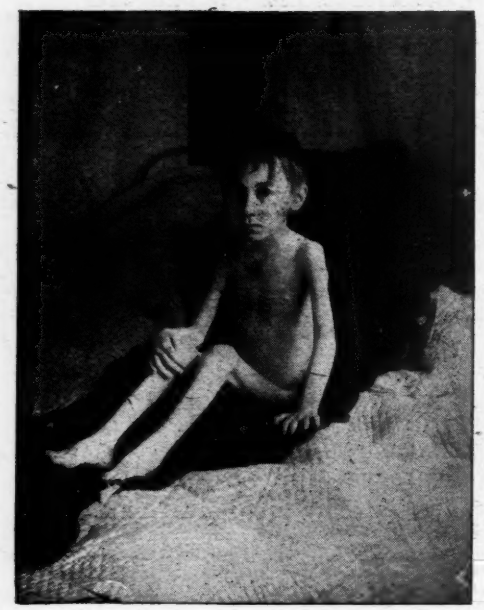

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ON THE LIMITATIONS OF THE ANTISEPTIC METHOD, ESPECIALLY IN RELATION TO BURNS AND SCALDS.

By A. C. F. Halford, M.D.,
Brisbane.

Foreword.[1]

During the now historical year 1914, I began to summarize my experiences of a method of treatment applied in the first place to burns and scalds, and subsequently to wounds and injuries generally, with the object of communicating a paper on the subject to this Journal. For various reasons the article was not offered for publication, when reports began to appear in the medical journals on the treatment of wounds in war. Because the indications were that a revolution was taking place in military methods, in contradistinction to civil practice, I decided to await its results. As I anticipated, the change was towards the elimination of the antiseptic method with the substitution of I knew not what. At first, however, a combination of well-known and widely used antiseptics was recommended.

While satisfactory results were claimed for the "eusol" and "eupad" dressings, Sir Almroth Wright's investigations led to the introduction of isotonic salt solutions, and various modifications have since been devised. The result has been, as before mentioned, the elimination of routine application of antiseptics. The valuable work of these investigators will no doubt have world-wide recognition. Yet there is still something more wanted. When the isotonic dressings have wrought all the good they are capable of, the wound is still unhealed but healthy. The method recommended by myself in the subjoined communication, at least merits a trial, either independently or in conjunction with those now adopted by military surgeons. That is to say, having converted the wound into a healing one, the encouragement of healing under an artificial scab is recommended not only on account of the rapidity of repair under such conditions with a minimum of deformity and pathogenicity, but because it is the crux of Lister's original method in compound wounds, and the closest approximation to natural processes available.

* * * *

Ever since the introduction of the antiseptic method of treating wounds, surgeons have expressed such satisfaction in its application that few indeed have paused for a moment to consider its limitations. Lister, however, pointed them out from the first. More particularly he emphasized the fact so often overlooked, that antiseptics are inimical to the actual process of healing.

Nevertheless, one may say that no surgeon of to-day would attempt to treat any but an aseptic wound without the constant application of an antiseptic of his choice.

It is impossible for the surgeon at the present time to think of, say, the separation of sloughs apart from an antiseptic dressing.

The object of this paper is to affirm that antiseptic dressings should not be applied in routine fashion to wounds in which necrotic tissue is present in macroscopic proportions.

The application of antiseptic substances to wounds does not assist the removal of dead and useless débris, but merely protects the healthy and damaged structures in the wound from invasion by pathogenic micro-organisms from without during the process of healing. The introduction of aseptic methods showed that antiseptics had hitherto been concerned in prevention of infection, and that healing of surgical wounds could proceed independently of the presence of antiseptic substances.

We know that the microscopic particles of débris in the cleanly incised wound of the precise modern surgeon are easily dealt with by, let us call it, phagocytosis, and are not discharged from the wound under aseptic conditions. Where, however, the individual is encumbered with macroscopic débris, such as are known variously as sloughs, necroses, mortifications, and the like, the tissue cells, lymph, and blood streams are incapable of removing these gross masses. Such useless substances must be cast off. Their separation is accompanied by considerable purulent discharges, and is effected by a kind of moist gangrene. This process is necessarily a slow one, and constitutes a serious drain on the strength of the patient.

The use of antiseptics at this stage will not help, but rather hinder, matters, for it will be shown that they are incapable of overcomnig the infection, and actually retard the separation of sloughs. The object before us is rather to facilitate the separation of macroscopic débris from wounds by a para-physiological method borrowed from nature herself.

In wounds caused by intense heat, surgeons may see how antiseptics of all kinds do not show any appreciable superiority over older methods, in which substances more or less inert or, at least, of low antiseptic value, were selected, and found to give the best results; firstly, in the relief of pain; and, secondly, in facilitating healing. This preference for inert powders and weak antiseptic lotions in burns and scalds is characteristic of surgical practice to-day. Yet no one candidly admits it. If a surgeon be asked, does he believe in the application of antiseptic methods in the treatment of these accidents, he will assuredly reply in the affirmative. Yet all the while he is using carron oil, or we find him "scraping the ceiling with the fire shovel."

This practice is a reasonable explanation of the undeniable fact that the complications of burns and scalds, and the deaths from sepsis occur just as often now as in the days before Lister.

[1] The Foreword has been written recently, and appended to the body of this article, which was completed two years ago.

Firstly, the teaching of Lister has been departed from, and, secondly, the measures adopted at the present day are practically identical with that of olden times. In 1895 the late Mr. C. B. Lockwood wrote in Treves's "System of Surgery" (Vol. I., p. 255), to the following effect:—"The prevention of suppuration after burns is in a very backward state. Suppuration is apt to be looked upon as inevitable, and its treatment often left to inexperienced persons. The number of deaths from sepsis after burns and scalds is a reproach to surgery." These words are, sad to tell, more or less true to-day.

On the next page he admits the shortcomings of ordinary antiseptic methods, saying: "It is difficult to find an antiseptic which fulfils the requirements, namely, to relieve pain, prevent sepsis, and exclude air."

In later publications on general surgery, there is a marked contrast to the candid admissions of Lockwood. This writer puts the young surgeon on his guard in respect to the weakness of his defence against such catastrophies, whereas later writers dismiss treatment in a few words, and in very general terms, and would lead the unwary to think that any one can treat these injuries. In spite of the antiseptic method, no advance of note is discernible over the treatment of cases, as no doubt occurred when Nero was a disinterested spectator of a general conflagration.

For further proof that antiseptics in such situations are not curative, let us consider for a moment the disease, now happily extinct, known as hospital gangrene. We hear nothing of Lister's success in treating cases of this disease, and doubtless neither Lister nor any one since his time could cure the disease by the application of antiseptics. Prevent it he did; cure it he could not. He was particularly careful to point this out. Lister's first efforts were directed to the prevention of suppuration in compound fractures, and here he was eminently successful, because his antiseptic did not merely destroy superficial infection, but his re-agent combined with the blood and exudate to form a protective scab under which healing could go on quietly after Nature's plan, without these dread complications. "Accordingly, he wiped out the wound with pure carbolic acid, and then sealed it with lint soaked with carbolic. The exudation, mingling with the acid, formed a paste which soon hardened into a firm scab." (Keen's Surgery, article on Lister.) This proves the prophylactic character of antiseptics generally, and that their curative properties are limited under certain conditions. Lister himself claimed originality for his method of "protecting the reparatory processes from disturbance by external agency."[1]

The Separation of the Umbilical Cord.

The stump of the umbilical cord is an instructive study on the separation of sloughs. Under natural conditions the cord separates within seven days of birth. Early separation is a consummation devoutly to be wished, otherwise septic infection, or even tetanus, is apt to supervene. By using antiseptic applications, and they are often prescribed, the cord may not fall of for days or even weeks. It is possible to delay separation in this way for a month.

The umbilical cord may be used as a standard test of the efficiency of all kinds of antiseptic preparations. The many proprietary powders, lotions and medicated dressings on the market one has been able to test clinically in this way, and the results have been compared with the claims made on their behalf. If the cord be kept in a dry state, even in the presence of antiseptic dressings, it is well known that it will fall off within a shorter period of time than if it is allowed to remain moist. When the cord is naturally small, or when blood and Wharton's jelly have been carefully expressed from it, the structure shrivels or dries up rapidly, and falls off within five days if no antiseptic dressing be used. It is astonishing to note how commonly antiseptic dressing of the umbilical stump is practised.

Under ideal conditions, dryness and reduction of mass, separation takes place in a manner closely approximating to dry gangrene. A well defined line of demarcation rapidly forms and deepens until separation occurs. It is precisely this process that should be emulated in all sloughing wounds, and it is from the study of this phenomenon that the present criticism of ordinary methods is attempted. It can be thus readily proved that antiseptics retard the separation of the umbilical cord, and also of sloughs. The existence of this fact must have an important bearing on treatment of conditions allied

Healing Under a Scab.

Comparison with Separation of the Umbilical Cord.

Prior to the introduction of the antiseptic method, healing under a scab was looked upon as a proper and advantageous phenomenon, encouraged, and admitted to be surgically orthodox.

From being an infrequent result, Lister devised a way to bring it about with unerring regularity. Since that time, however, except outside the practice of surgery, it has scarcely been allowed to occur. It is a commonplace to remind ourselves that all the cuts and scratches of daily life heal under a scab. Practically, it is the only known method of repair among lower animals.

Then why should the scab be abhorred in surgery? Is there any more suitable protective covering for a wound than what is essentially a substance homologous with the structures it overlies? No more uniform, rapid and uncomplicated repair has been seen under any other conditions. The scab is the acme of design. Under any other dressing there is invariably exuberant granulation. Such a condition cannot occur in the presence of scab-formation. Separation of the dead tissues takes place rapidly, without local reaction of any moment, and there can be no danger of re-infection which, in the case of wounds treated by frequent dressing, is most difficult to prevent in spite of all our skill and care. It is all the difference between dry and moist gangrene, and all surgeons know which they prefer.

What are the factors which lead to repair in wounds?

It is an accepted principle that the tissue cells overcome septic invasion by immunization through

[1] *Lancet*, October 5, 1887.

the formation of antibodies. The products of microbic activity in the wound are the stimulus to this defensive reaction. Hence the exudate of an infected wound is intimately concerned in the struggle between the invaders and the invaded. Doubtless this fact was clinically and empirically recognized by the older surgeons who spoke of "laudable pus." Under favourable conditions, and particularly if unremitting efforts are directed to that end, desiccation of this laudable secretion occurs sooner or later, and healing under a scab is said to be in progress. As long the wound is allowed to remain undisturbed, and every care is taken to keep it dry, the necessary stimulus to the formation of antibodies is still present, and though in desiccated form it is still active. If the scab be removed an injury is inflicted. More secretion is poured out, and if allowed a fresh scab forms. So persistent is this tendency that no matter how often it is removed, the last stage of healing, however minute, is completed under a scab. It is reasonable to assume, therefore, that the presence of this exudate, laudable pus or whatnot, in a scaly condition, is essential to the process of repair of surface wounds.

That healing under a scab by evolution passes from the pathological to the para-physiological is a phenomenon that cannot be gainsaid. To this class we may add desiccated sloughs. The separation of the cord of all these conditions most closely approximates a physiological process, and is very fancifully suggested as being vestigial in man of the process of reproduction characteristic of fission fungi.

The process of repair is probably the homologue of the combined functions of assimilation and reproduction as found in unicellular organisms. Like these fundamental properties or functions the process of repair is just as discriminating in taking into the organism that which is suitable and rejecting that which is offensive or harmful, as well as replacing the wastage due to injury. By desiccation the stump of the cord becomes a scab, the dried slough becomes a scab. Then two fundamentally related para-physiological processes are at work.

Artificial Aids to Scab Formation, and Application to General Surgery.

For some years now an attempt has been made to treat cases on these lines, more particularly injuries due to burns and scalds. After trying various methods involving the use of hygroscopic powders, all of them had to be discarded as falling short of the requirements. Such substances may keep a wound dry for a day or two, but sooner or later the dressing has to be removed and a fresh one applied. This was, of course, just what one wanted to avoid, the whole purpose being to form a scab which should remain undisturbed until exfoliated at the completion of healing. Alcohol was the only reagent that could accomplish the dehydration of the wound and its covering as often as necessary without disturbing the dressing.

For about four years alcohol has been used in this way with most satisfactory results. In fact the principle has been applied to all surgical wounds and injuries of the external surface. The method is applicable to wounds expected to heal by first intention as well as those characterized by the presence of necrotic tissue in macroscopic proportions.

In plastic operations the edges of the wound are glued together by the dried exudation, which, combining with a scanty dressing, forms the much-desired scab. The same advantages are seen, and in fact the best results have been achieved, in wounds inflicted by crushing as occurs in machinery accidents. The torn flesh once replaced is kept in nice apposition, even without sutures, which are often undesirable in these cases. The blood supply cut off by sutures will frequently mar what might have been a fair result.[2]

A very firm unyielding splint is formed by the desiccated blood, exudate, and light gauze dressing. Spraying the dressing with alcohol daily keeps it in a thoroughly dehydrated state. If necessary for purposes of inspection, all but one layer of the gauze may be removed. Even eyelets may be cut through this, if indications exist. Immediately after gauze is reapplied and scab-formation encouraged.

No doubt it will be said that alcohol is a powerful antiseptic, and that its adoption is only a special application of a particularly efficient member of that class. Of course it is, and it should be, from its origin, an ideal antiseptic. It is the product of germ activity in saccharine solutions, and so is a natural poison to unicellular organisms. It must be insisted that it is not used for this purpose, but as an agent for rapidly removing moisture from the wound and its covering. Hot dry air may produce a somewhat similar result, but is mostly impracticable. Dieulafoy, in the *Presse Médicale*, of February 16, 1913, reports a case of diabetic gangrene treated by superheated air. At the end of three months, as the tissues were practically cooked, the gangrene dried up, and he was able to amputate successfully. It is more than likely that the same result could have been obtained with alcohol in a much shorter time. Museum specimens are usually hardened in less than half that time by the old spirit method.

The antiseptic action of alcohol has its advantages in this method no doubt, but fortunately it quickly evaporates, taking the water with it, and so its action in this respect is evanescent. Fortunately, because if its action continued, the separation of sloughs would certainly be delayed. It must be constantly borne in mind that the only indication for its use is the removal of moisture from the dressing.

A writer quoted in the *Medical Annual* for 1911 (pp. 199 and 200), applies a solution of perchloride of mercury in alcohol at the initial dressing of his burn cases. Knowing it to be dangerous to apply the perchloride continually, he does not advocate its continuance, and so discards it and the vehicle, alcohol. This is one more of the numerous instances of the antiseptic fetish. The idea that an antiseptic substance must be applied causes the advantages

[2] About three years ago a man had his hand caught in a rolling machine, like a mangle, and all fingers were split back and front and pulped. Gauze was wrapped round each finger separately, approximating the torn edges and keeping in place the tops of two fingers, the middle and ring, which would be slipped off from the broken phalangeal stumps and were only held by tendons and the skin of the back of the fingers. Alcohol was freely applied twice a day and he returned to work in 14 days. His hand is as good as ever it was to-day.

of alcohol to be overlooked. The author quoted appreciates the advantage of not removing the original gauze dressing, but his and every other method must fail through the onset of sepsis in all but the lesser degrees of burns. Such cases get well under any treatment, especially if let alone!

No antiseptic need be applied when in these very superficial burns the dressing has stuck and is dry, and no antiseptic should be applied in the severe cases for fear of absorption and for their action in retarding separation of sloughs.

Thus it is contended that the limitations of antiseptic methods are reached in the presence of such necrotic tissue and in the perfectly dry wound. All that is necessary is to make and keep wounds dry. E. T. C. Milligan, in the *Australasian Medical Gazette*, of January 4, 1913, advised dressing patients daily under an anæsthetic with alcohol. He naturally obtained good results, but the daily dressings are unnecessary, and to a degree defeat the end in view.

Technique.

Perhaps it will be best to illustrate the technique by describing the method of dealing with a severe case of burns and the after-care of the patient.

General principles will be taken for granted.

The first step is the administration of a general anæsthetic. To withhold this is inhuman. At the same time, morphine should be exhibited. Then the injured parts are exposed, cleaned and disinfected on approved lines. Care is taken to remove all epidermic débris from blisters. The initial procedures must be thorough, as the avoidance of subsequent manipulations is the feature of the method. After the surgeon is satisfied that an aseptic condition has been established to the best of his ability, the injured surface should be covered with three or four layers of sterile gauze. The number of layers may, with practice, be estimated according to the varying severity of the injury. The same remark applies to the cotton wool which is placed over the gauze. Over this is placed adhesive straps to keep the dressings in place until they have become glued to the wound by desiccation.

It is not advisable at this dressing to apply alcohol, unless the surfaces involved are small, for fear of the intoxication superadded to the chloroform or ether used. If it be applied, its action can only be that of an antiseptic, and it must be remembered that this is the last application of an antiseptic that should be necessary.

Incidentally it is only right to insist on warmth for the patient by all available means. Loss of heat should be avoided as much as possible in dressing the wounds and in after-treatment.

The dressing should require no further attention for at least twenty-four hours, when it is advisable to spray it with alcohol. Only just sufficient to reach the deeper parts of the coverings is necessary, and at the first indication of pain the spray should be directed to another part. In all cases of extensive burns, and always in children, an anæsthetic should be administered for the first few days until the application ceases to cause pain. Every day some part of the dressing may show signs of moisture from the wound, generally a serous exudate. This must be converted as soon as possible into a dry state by spraying with alcohol, as otherwise it will rapidly become offensive, and signs of sepsis would soon supervene. When the dressing becomes sodden with this discharge, and any trace of putrefaction is suggested, the portion so affected may with advantage be excised. If possible the layer of gauze next the wound should be left undisturbed. Fresh gauze is then applied to take the place of that removed and sprayed with spirit. As a rule this only need be done in one patch or two, and often there is no need for it. In any case, during the first week no portion of the dressing, soiled as the result of putrefactive changes, is to be left unattended, and at no time is the wound itself anywhere actually uncovered. These operations are therefore painless, and risk of infection from external agencies is never incurred. This is a very important point, because with a large surface exposed it is practically impossible to prevent infection at least from the air. Air-borne infection is harmful in burns from their special nature, containing as they do so much necrotic tissue. On the other hand, ordinary surgical wounds are not so susceptible.

As soon as any part of the wound ceases to discharge to an apparent degree all superfluous coverings, such as cotton wool, should be removed, to allow of free evaporation and ventilation. At the end of a fortnight the major portion of the dressing will be shelled off, and as it loosens it may be cut away.

At any time from now on, if the wound is healing under this artificial and natural scab, the advisability of skin-grafting may be considered. It is a remarkable fact, however, that very seldom is any such measure required. In a great majority of burns islets of skin have escaped destruction in places thought to have been so destroyed that no traces of dermal structures could exist. These traces, however minute, are preserved instead of succumbing to the influence of sepsis, which is a concomitant of all moist methods of treatment. In this way a minimum of scarring and contractures occurs, and the final result exceeds all expectations. If grafting is found necessary, the same principles should be followed. Its success is assured from the healthy nature of the healing surface.

Removing dressings that have become firmly cemented to the healing or healed wound may be desired before spontaneous exfoliation, though this should be avoided where possible.

The method recommended is by no means original, but is not often practised under these circumstances nor in the removal of dressings from other wounds. A loosened edge is seized with a straight clamp. By rotating this on its long axis and pressing the clamp firmly upon the part of the dressing on which it lies, the wound is uncovered painlessly and without injury. Of course in hairy parts, or where sutures are encountered, such objects as adhere to the dressing must be cut with scissors.

The alcohol used is the ordinary methylated article. That known as "hospital" methylated spirit is the best to use. An ordinary coarse scent-spray is all that is required to apply it. As a refinement of the method *eau-de-cologne* or lavender may be added to the spirit.

The inflammability of the re-agent should be impressed on all concerned. All dressings should therefore be ordered to be done during daylight. Smokers also should be warned against striking matches in the vicinity of alcohol-soaked dressings.

Advantages.

The advantages have been incidentally referred to, but a summary is at least useful.

As it is not necessary to dress the patient daily or oftener, or in fact at any time to expose any part of the wound, much suffering is avoided. The distress and pain and consequent shock occasioned by removing and reapplying dressings to extensive injuries of this class seriously affect the prognosis of the case. The difficulty of accomplishing this daily without help, often is formidable. Risk of infection from without is avoided, and no disturbance of the healing process is involved.

Uniform repair and preservation of all uninjured tissues, however minute, are assured. Skin-grafting is very rarely necessary. Absence of exuberant granulation is of paramount importance in the ultimate result. It cannot occur under the scab.

Lastly, there is considerable saving in the dressings and applications, which in some circumstances may be prodigious. This is a matter of prime importance in hospitals where copious dressings have in such cases been used at considerable cost. A few shillings will buy all the spirit required for the most serious cases.

Disadvantages.

There are two disadvantages. The application is painful. All manipulations in these cases are so; therefore it is not singular in this respect. The pain does not last long, and it is only occasionally that it is inflicted. After the first three days it is quite negligible.

There is danger from absorption if applied too freely over large surfaces. This risk is reduced by using a spray, and only applying it freely where it is actually wanted. The risk is really serious only in conjunction with anæsthesia. The latter should be as light as permissible.

The inflammability of alcohol must never be disregarded.

In conclusion, it is claimed that a reagent and method of its application has been found which on the whole fulfils the requirements laid down by Lockwood. Further, it is not contended that his very tardily recalled reproach is removed from antiseptic surgery, but rather from antiseptic surgeons with whom it has more properly lain.

Note, by A. M. McIntosh, B.A., M.B., Ch.M. (Syd.),
Brisbane.

The method described above of utilizing alcohol as a dehydrating agent to induce healing under a scab was tested by me as fully as opportunity allowed during 1913-14-15. More recently opportunity to extend its application has been wanting. The results have been so uniformly successful that I consider the method merits trial on a more extensive scale, such as is possible only in a public hospital. Having had some considerable experience of casualty and out-door patient departments of a general hospital, I am convinced that the adoption of this method would result in great economy both of the time of the casualty surgeon and of the hospital dressings. In place of repeated changes of dressings as occur in most other routine methods of treatment, the first dressing is in most instances the last, and it is removed only when it separates after healing is complete. In the treatment of burnt children this method is a veritable boon. Take this case as an example:—

A small boy, aged 7 years, fell against a kerosene tin full of boiling fat, and was severely scalded on both upper and lower extremities and chest. I saw him shortly afterwards, and under anæsthesia cut away his clothes, moistened the scalded areas with methylated spirit, and applied a dressing of gauze and wool. Forty-eight hours later the affected parts were covered with very large blebs full of purulent fluid. An anæsthetic was administered, all dressings were removed, the blebs incised, and methylated spirit applied to the raw surfaces; a dressing of gauze and wool was again used. After recovery from the anæsthetic, the boy complained of severe pain, which was alleviated by morphine. Thereafter methylated spirit was sprayed daily on to any moist portion of the dressing, and there was no complaint of pain or inconvenience from the patient. From the seventh day onwards he amused himself by gradually peeling the dressing off, and healing was complete by the tenth day.

As a Resident Medical Officer in hospital, the daily dressing of burnt children was to me a most hateful task, and to the patients a real torture. If they are treated by applications of alcohol pain is reduced to a minimum and their recovery hastened.

When a large bare area is left after a deep burn or sepsis of any kind, this method of treatment secures a healthy surface free from exuberant granulation, and skin-grafting, if necessary, can be undertaken at an earlier date than would otherwise be possible.

CEREBRO-SPINAL FEVER, 1916.

By C. Alwyn Stewart, M.D. (Melb.).
Melbourne.

In the present article it is intended to give a brief account of additional experience gained in the treatment of cerebro-spinal fever during the year 1916. Some of the facts have already been used for publication[1], but the figures are entirely new. The main purpose of the article is to advance a strong plea for the more rational and intensive use of anti-meningococcal serum, which I am now convinced is a strongly curative agent, if used properly and early.

The cases now under review comprise 201 male cases treated at the Alfred Hospital by myself dur-

ing the year 1916; as far as possible, the comparative figures for 1915 are given in parenthesis.

Taken as a whole, very little difference was observed last year as regards the type and severity of the disease. At the height of the epidemic, the cases were quite as severe as in 1915. It is to be noted, however, that the seasonal incidence varied, the maximum severity of the epidemic being experienced in May, June, July, and August, as compared with August, September, and October in 1915. The following table gives the monthly admissions to the Alfred Hospital:—

Table I.

Month.	1915.	1916.
January	—	8
February	—	4
March	—	13
April	—	10
May	—	31
June	—	36
July	—	35
August	120	27
September	60	18
October	39	10
November	19	7
December	15	2
Total	253	201

Whilst the gross mortality for 1915 was 49 per cent., that for 1916 was 38 per cent., and that without making any allowance for hopeless cases. I have compiled the following table, which shows the age incidence of the cases, and also the mortalities of the various age groups, the corresponding figures for 1915 being given in parenthesis:—

Table II.

Age.	Military. Died.	Military. Cured.	Military. Total.	Civil. Died.	Civil. Cured.	Civil. Total.	Mortalities (Per Cent.) Military.	Mortalities (Per Cent.) Civil.
Under 5 years	—	—	—	1	—	1	—	100 —
5 to 9 years	—	—	—	1	1 (1)	2 (1)	—	50 (Nil.)
10 to 14 years	—	—	—	9	8 (5)	17 (5)	—	52.9 (Nil.)
15 to 19 years	2 (16)	10 (20)	12 (36)	5 (7)	26 (14)	31 (21)	16.6 (44.4)	16.1 (33.3)
20 to 24 years	12 (35)	18 (33)	30 (68)	4 (5)	14 (8)	18 (13)	40 (51.4)	22.2 (38.4)
25 to 29 years	4 (18)	9 (23)	13 (41)	6 (3)	11 (6)	17 (9)	30.7 (43.4)	35.3 (33.3)
30 to 34 years	5 (3)	1 (7)	6 (10)	3 (2)	6 (2)	9 (4)	83.3 (30)	33.3 (50)
35 to 39 years	— (2)	2 (3)	2 (5)	5 (5)	3 —	8 (5)	Nil. (40)	62.5 (100)
40 to 49 years	2 (1)	2 (2)	4 (3)	8 (12)	5 (1)	13 (13)	50 (33.3)	61.5 (92.3)
50 to 59 years	—	—	—	10 (13)	4 (2)	14 (15)	— —	71.4 (86.6)
60 years and over	—	—	—	3 (2)	1 (2)	4 (4)	— —	75 (50)
Totals	25 (75)	42 (88)	67 (163)	55 (49)	79 (41)	134 (90)	37.3 (46)	41 (54.4)

Several interesting facts are brought out in the above table. In 1915 there were 163 military cases, or 64.4 per cent. of the total; whilst in 1916 there were but 67 cases, which represented 33.3 per cent. of the total. The civilian cases increased from 90 in 1915 to 134 in 1916.

It will be seen that the lessened mortality is reflected in practically all the age groups. There is one aspect of the mortality statistics that I have mentioned before, and that still requires to be stressed, and that is, that for the corresponding age groups the mortality of the military cases is considerably higher than that of the civilians; this should not be. Although this difference is only brought out in two of the age groups in 1916, the difference in these cases is most striking. Various hypotheses have been advanced from time to time in an endeavour to explain this difference—for example, that the meningococcus gains in virility by passage through large numbers of men in camp, that the majority of soldiers attacked by the disease are country lads (this is true), without any resistance built up by previous exposure, etc. Personally, I have found the most potent factor in keeping up the death-rate to be an extraordinary delay in making a correct diagnosis early. It is scarcely credible, but a fact, that not one but many military cases were kept in the clearing hospitals, two, three, and even four days, before being diagnosed, and consequently received no appropriate treatment during that time.

Attention must again be drawn to the greater death-rate in people of 35 years of age and over, and although the mortalities of 1916 are lower than the previous year, the differences in the two classes are as marked.

Table III.

	1915. Cases.	Deaths.	Mortality per cent.	Cases.	Deaths.	Mortality per cent.
Under 35 years	208	89	42.8	156	52	33.3
35 years and over	45	35	77.7	45	28	62.2

This fact must be borne in mind in comparing different lines of treatment.

To come now to a discussion of the lines of treatment followed during the past year, it may be said at once, that despite the fact that much has been said about the inefficiency of Flexner's serum, I am convinced that if used properly and in sufficient dosage, and provided the case be seen early enough, the results will be good. There is no need to recapitulate the views already expressed in a previous publication[1] as to the mode of infection, except to emphasize the importance of recognizing a 'septicæmic or bacteriaemic stage, and its persistence after meningitis has been definitely established. On the acceptance of this view depends the rationale of the serum treatment as I have applied it, which is on a more active scale than has been previously advocated.

In the publication already referred to, Fairley and I stated that we were obtaining good results with large doses of serum given subcutaneously and

intravenously, combined with the intra-thecal serum medication. No figures were then available, but I have now worked them out for last year, and they prove conclusively the increased efficiency of the serum.

Before giving the figures, an outline of the routine treatment of the cases in the acute stage, as practised last year, will be given. The first few cases in 1916 were mild, and were treated with lumbar puncture only, since I had been feeling rather discouraged with the results of serum therapy. These cases did well, since they were only mild, but as the epidemic waxed and the cases became severer, the mortality commenced to rise. At this time I commenced to wash the theca out with normal saline solution two or three times at each lumber puncture. This procedure has been carried on as a routine ever since, and with considerable success, since the number of "dry taps" from thickness of the cerebro-spinal fluid was reduced to a minimum.

Intra-thecal application of serum was instituted, and after a short time this was supplemented by subcutaneous injections. At first I was only using small doses (100 c.cm.), but these were gradually increased until now the initial dose is always 300 c.cm., and is followed by daily injections of 200 c.cm. for two, three or four days, according to the condition of the patient. Indeed, the total amount used on any one patient has on more than one occasion exceeded 1000 c.cm., the largest amount used being about 1300 c.cm., spread over ten days. The results obtained were better than when intrathecal injection of serum alone were used, and this in face of the fact that the cases were increasing in severity.

Encouraged by the improvement attained, I then decided to intensify the treatment further, by giving serum intravenously in addition. And I want to make it clear that since the introduction of the intravenous route of applying serum, I have, to make the test more rigorous, only given it in cases of marked severity, i.e., to those cases which are markedly septicæmic as shown by excessive and prolonged initial vomiting or marked rash, cases which are known to have ordinarily a higher mortality than others. These cases Fairley and I classified under the heading "hyperacute." It was then only to the hyperacute and fulminating cases (with one or two exceptions) that the serum was given intravenously. In these cases the routine previously described has been followed with, in addition, 90 or 100 c.cm. of serum injected intravenously at once, followed, if necessary, for the next day or two, by doses of 60 c.cm. A word of warning must be given on the administration of the serum by this route. In the first place, it should not be given if the patient is deeply unconscious, or in a fighting delirium. The most favourable cases are in patients, who are still perfectly clear mentally, although markedly septicæmic. Secondly, of course the serum should be warmed before administration; the outfit supplied by Messrs. Parke, Davis and Co. with the serum for intrathecal injection is eminently satisfactory for this procedure as well, the needle being inserted directly through the skin into the vein, and the serum allowed to flow in very slowly by gravity.

It must be remembered that in these cases the cardiac musculature is in a very bad condition, and any sudden pouring in of fluid into the venous system will precipitate a right heart failure. The serum then must be given very slowly, and occasionally a needle inserted into the median basilic vein of the other arm is of assistance in acting as a safety valve. The pulse, colour, and respirations must be watched carefully throughout the injection, and a preliminary hypodermic injection of camphor (grs. v.) is of great value. The effect on the pulse is to increase its rate greatly; this must be carefully watched, but the injection need not be stopped until the pulse is becoming markedly irregular and imperceptible. The face becomes very flushed towards the end of the injection, and the respirations deeper and more rapid. The patient often gets duller, and any sign of stupor setting in is a sign that the injection must be stopped. It is advisable to perform lumbar puncture and administer the intrathecal serum before giving the intravenous injection.

The following table gives a comparison of the results obtained by the various methods, and the gross figures, as well as the corrected figures, are given in each instance. Since the mortality in persons of 35 years of age and over is double that of the younger patients, it is obvious that these must be excluded (both deaths and recoveries) from the table, in order to obtain a true comparison. With a similar object in view, a column is given excluding cases obviously hopeless when treatment was instituted, such as moribund cases, and cases untreated for several days before admission (in two cases three weeks had elapsed).

TABLE IV.

Treatment.	Gross Figures.			Excluding Hopeless Cases.			Excluding Hopeless Cases, and those of 35 years of age and over.		
	Cured.	Died.	Mortality.	Cured.	Died.	Mortality.	Cured.	Died.	Mortality.
Lumbar Puncture Only (mild cases)	16	6	27.2%	—	—	—	13	4	23.5%
Antimeningococcal Serum Intrathecally only (mostly mild cases)	14	10	41.6%	14	9	39.1%	14	4	22.2%
Antimeningococcal Serum Intrathecally and Subcutaneously	71	50	41.3%	71	30	29.8%	62	23	27%
Antimeningococcal Serum Intrathecally, Subcutaneously and Intravenously (all severe cases)	17	11	39.2%	17	6	26%	14	3	17.6%

It will be seen from perusing Table IV. that a great improvement in the mortality can be looked for by the adoption of the use of serum by intravenous injection in as many cases as possible. Un-

fortunately, from the severity of the procedure, it cannot be given satisfactorily in the very bad cases, nor in children.

I have seen no bad after-effects from these large doses of serum. In practically every case a serum rash developes within about ten days, but the rash following the use of a small dose of serum (as in mild cases) is, if anything, more severe than that following the large doses. Pyrexia, painful joints, and enlarged and tender cervical glands have been observed in many cases in conjunction with the serum rash.

The serum used throughout has been that prepared at the Melbourne University Veterinary School, under the supervision of Dr. R. J. Bull. It contains about 0.5 per cent. of trikresol as preservative.

The complications differed very little last year from the year before, except in regard to deafness. There were no cases of deafness in 1915, but last year amongst those who recovered there were five cases of complete and permanent bilateral nerve deafness, and one unilateral. Internal hydrocephalus was again noted frequently, and was the cause of death in practically all the cases that reached the chronic stage. I cannot agree with the observer who stated in this Journal, a few months back, that this complication never occurs, or is exceedingly rare. We have repeatedly observed it at the Alfred Hospital.

Sugar in the urine (as high as 3 per cent. in a couple of cases) was noted in 19 cases, but only early in the disease. Twelve of these recovered.

Pericarditis and broncho-pneumonia were again very fatal complications, but bearing out previous experience, lobar pneumonia as a complication by no means heralded a fatal termination, since two or three cases occurred, followed by recovery.

Summary.

(1) The importance of early diagnosis and treatment cannot be over-emphasized. Whilst at the Alfred Hospital last year, I formed the opinion that it would be of value if an officer skilled in the diagnosis of meningitis were available to visit the various clearing hospitals, and consult with the staffs, so that cases would not go unrecognized.

(2) The administration of serum by intravenous and subcutaneous injection in large doses is, at least, of equal, if not of greater, importance than its administration by the intrathecal route.

Reference.

[1] Fairley and Stewart: "Cerebro-spinal Fever": Commonwealth Service Publication, No. 9, 1916.

Reviews.

OBSTETRICS.

Dr. Shears' admirable book[1] is essentially practical. Much irrelevant matter which is usually found in books on obstetrics is omitted; but, still, in a comparatively small space, the whole subject of normal as well as operative obstetrics is well covered. The author's views are generally summed up in a few sentences so clearly expressed as to cause conviction and make a permanent impression on the memory. This book will be useful, not only to the lecturer on obstetrics, but also to the student and general practitioner. The subject-matter is put in a concise, easy style, and the illustrations are excellent.

The first part, dealing with changes in the maternal organism resulting from pregnancy, and the clinical phenomena of pregnancy, is clear and concise, and contains in a small space a mass of useful information. The chapters on the management of labour are very excellent.

There has been much heated controversy on the so-called "twilight sleep." The author discusses the *pros* and *cons* in a fair spirit, and shows that undue conservatism has opposed it, as it always opposes anything that is new, and that something of the stupid and cruel superstition that suffering during labour is necessary and in itself beneficial, still lingers in the minds of many, while, on the other hand, an over-zealous and often unintelligent advocacy of the method, with an apparent determination to ignore its possible dangers and to resent legitimate or well-meant investigation and criticism, has done much to keep it out of the hands of those best qualified to judge its real merits. He summarizes his opinions on what we have learnt from the Freiburg school by advising a small dose of morphine and hyoscine, which will produce a considerable degree of first-stage analgesia without danger to mother or child. This is followed by a second dose of hyoscine if necessary. No attention is paid to memory test, and no effort is made to secure amnesia. Of course, this is not "twilight sleep"; it is only a substitute for it, but it has the advantage of being safe and applicable to general practice, and it certainly very materially diminishes the suffering incident to labour. The subject of extra-uterine pregnancy, which occupies the borderland between obstetrics and gynæcology, is briefly but sufficiently discussed. The chapter on malpositions and malpresentations is a very instructive one, and the diagrams are excellent.

There is a very practical chapter on fœtal mortality in labour—an important but neglected subject. It is indeed a sad reflection that many an unborn child whose potential usefulness we may not know is lost for lack of a few simple precautions.

Obstetric operations, including Cæsarean section, are fully described in plain language, and fully illustrated. In fact, the charm of the book is the plain, matter-of-fact, easily-read and understood manner in which the large subject of obstetrics, normal and operative, is placed before its readers. It is a book which should be particularly useful to the man starting in practice and to the general practitioner, for it is the latter who has to devote long periods to the laborious and ill-paid work of pure obstetrics.

[1] Obstetrics, Normal and Operative; by George Peaslee Shears, B.S., M.D.; 1916. Philadelphia: L. B. Lippincott Company; demy 8vo., pp. 745, with 419 illustrations. Price 30s. net.

A NEW MEDICAL JOURNAL.

The first volume of *Endocrinology* started with the January number. This journal is the Bulletin of the Association for the Study of the Internal Secretions. It will be published quarterly, and the annual subscription is $5.00. The journal is arranged in a very convenient manner, and will be found extremely useful by all interested in the subject of the ductless glands. The first few pages are occupied by editorial articles, signed by the authors. Dr. Lewellys F. Barker writes an introduction, Dr. C. E. De M. Sajous deals with the future of the internal secretions, Dr. Tom A. Williams has a couple of pages on endocrinological problems, and Dr. Henry H. Harrower closes the editorial utterances with an article on the prospects of anterior pituitary therapy. The second part of the journal is devoted to original communications, and is characterized by an innovation in the nature of editorial comments on each article. The comments are signed. It thus appears that in *Endocrinology* the usual principle obtaining in medical journalism, at all events as far as the English-speaking countries are concerned, of anonymity is sacrificed. The third part is occupied by reviews of books. The last section is the most important of all, partly on account of the excellent manner in which it is carried out, and partly because a great deal of space is devoted to it. It contains resumés of available articles dealing with the internal secretions. A very valuable cross index of subjects and authors enhances the utility of this new publication. We prophesy for it a successful career.

The Medical Journal of Australia.

SATURDAY, APRIL 21, 1917.

Medical Research in War Time.

The Second Annual Report of the Medical Research Committee, dealing with the year 1915-1916, is a document replete with information of a highly significant character. From it very many lessons of use to the medical profession in the Commonwealth can be learned. It is worthy of a careful and critical analysis, not only of the main facts concerning the first attempt to utilize public money on a comparatively large scale for the purpose of medical research, but also of the influences which necessarily play an important part in the moulding of research under these circumstances. It may be advisable and even necessary at some future date to discuss the history of the Medical Research Committee and its development up to the present time, in the light of these influences and to draw deductions which may help to safeguard medical research in the Commonwealth from those factors which appear to be undesirable and to illuminate those which may be adopted with advantage to science and scientists. At the present we may content ourselves with the warning that Listers, Pasteurs, Kochs and Ehrlichs cannot be produced by Governments, no matter how beneficient, and that any employment of public funds for the purpose of research should be directed toward the establishment of tempting careers for investigators with talent whose services would otherwise be lost to the world of science because of a lack of opportunity. The Medical Research Committee has already done signal service in attempting to co-ordinate scientific work in particular directions, and in providing facilities for collaborated investigations. It would be unreasonable to have expected large results under any circumstances in so short a time, and doubly unreasonable to have expected them during the course of the war. Early in the first year of its activity the ingenuity of its Secretary in organizing research schemes received a temporary check, and his skill was deflected toward channels in which neither he nor anyone else connected with the Committee had any experience. The funds at the disposal of the Committee could not be expended as was originally planned, because there were few, if any, workers to carry out researches connected with ordinary pathology and preventive medicine, and because the Committee and the workers all agreed that every endeavour must be made to further that special chapter of medicine which has a direct bearing on the war. The Committee give an account of the work undertaken under their auspices, both in the British Isles and at the front. There is a tendency to claim as work produced by the scheme of the Medical Research Committee all investigations undertaken towards which the Committee has made some small contribution in money or apparatus. These contributions are no doubt useful, but the fact should be recognized that the work would have proceeded without them, and that the Committee has not actually advanced scientific endeavour to a material extent by its assistance. It would, in our opinion, have been juster had the Committee avoided the inclusion of contributions to medical literature which have resulted from this kind of research from their summary of the results of their research scheme.

The work undertaken directly by the Central Research Institute in connexion with the war was largely statistical in nature. A collossal undertaking, which should prove of great value, is the preparation of the statistics of the sick and wounded from the Home and Expeditionary Forces. The work was undertaken for the Army Council, and has assumed such huge proportions that the cards that have been accumulated and sorted already weigh over fifteen tons. It is a work of patience and good organization; no special genius is required, and the machinery of the Central Research Institute will probably prove quite adequate for the purpose. This is not scientific research, in the sense in which the term is ordinarily used, but it is essentially utilitarian and excellent work. A subsidiary work consists in the supplying of information concerning soldiers who have been in hospital for various reasons. This and other record work will be available to the editors of the Medical History of the War.

In the next place, the Committee has been instrumental directly and indirectly in furthering patho-

logical work at military hospitals. P. Fildes has been employed by the Committee to work at the Royal Naval Hospital at Haslar, and he has carried out investigations on dysentery and enteric fever. During the year 1916 he published an article on the duration of the immunity following antityphoid inoculation. A long list of hospitals is given, at which pathological workers or grants in aid have been provided by the Committee. The researches of Almroth Wright on wound infection, that of S. R. Douglas on immunity reactions, as well as the investigations of their assistants at the No. 13 General Hospital, Boulogne, on various bacteriological problems directly associated with war conditions justifies the transference of the Department of Bacteriology of the Central Institute to military hospitals. In the Department of Bio-Chemistry and Pharmacology, a considerable amount of research connected with dysentery, bilharziosis and the toxicity of sera has been accomplished by Dale and his staff. The war work conducted by Leonard Hill and his co-workers in the Department of Applied Physiology embraced the subjects of the hygiene of munition factories, the inspection of canteens and the control of the dietaries of workers, the physiological action of certain vapours met with in munition factories and of new and old poisonous gases, and certain aspects of heat loss and "trench foot."

This already considerable list of researches is enormously extended by investigations undertaken by workers outside the Central Institute. The Committee lay claim to having facilitated the now famous work of Lorrain Smith and Ritchie, Dakin, and Carrel, connected with the treatment of infected wounds with solutions of hypochlorite of soda. With what justification we are unable to say. It would appear, however, that even if the Committee did contribute materially toward the cost of the researches which led Lorrain Smith to determine the antiseptic value of sodium hypochlorite, and which enabled Dakin and Carrel to elaborate the lavage method of applying the solution, the assistance is of small moment, and need not attract much attention. Of more importance is the fact that the Committee secured the services of Dakin after his return from Compiègne to work at the Bio-Chemical Department, where he undertook some very important researches on the antiseptic value of chloramine. The publications of Browning, Bond, Moynihan, Fisher, Fraser, Goadby, Garrett Anderson, Helen Chambers and Margaret Lacey are also included in the list of those dealing with the treatment of wounds.

At Oxford the Committee bore the cost of the establishment of a Standards Laboratory under the direction of Professor Dreyer. In this instance, again, it is clear that the Committee have been following the plan of subsidizing men whose energies were already secured for scientific research, in order to enhance its popular reputation. This scheme does not in fact assist scientific research, since it does not extend the scope of original workers. It merely assures for the Committee the credit of having assisted in a pecuniary manner workers whose reputations have already been firmly established. Oxford University is quite competent to grant Professor Dreyer any facilities he needs for carrying out national work. The work done in the new Standards Laboratory has been of a high order. Similarly, Walker Hall, Ainley Walker, Donaldson, Tidy and Dunn, *inter alia*, have accomplished useful work in connexion with enteric fever. Dysentery has attracted the attention of many workers with whom the Committee have been in direct or indirect contact. Dean, Walker Hall, Ritchie, Ronald Ross, Wenyon, Low, Dobell and Adam have published the results of their investigations on this subject. Not less important is the work carried out in connexion with epidemic cerebro-spinal meningitis, and the list again is by no means a meagre one. The bacteriology of the anaerobes, the ætiology of trench nephritis, the nature of various neurological affections, the biological tests for British and French salvarsan preparations, the effect of fatigue in industries, and especially in munition factories and methods of skin grafting are among the subjects dealt with in this widespread campaign of war research. We wonder how essential has been the part played by the Committee. It must not be forgotten that some of the best work carried out since the war began on the subjects enumerated above has been conducted by patriots like C. J. Martin, Andrew Balfour and many others who have relied on the arrangements of the War Office for facilities for these essential researches. Be this as it may, one fact emerges with

singular clearness from this interesting report. It is that the amount of war research carried out in Great Britain has been very large indeed. Has Australia produced a proportionately large share? If not, the fault must lie with the authorities for not providing facilities.

THE ALKALOIDS OF SOLANDRA LONGIFLORA.

Many plants grouped in the Natural Order, *Solanaceae*, give rise during their growth to substances which possess great pharmacological activity when introduced into the animal body. A number of these substances belong to the class of chemical compounds designated as tropëines. They include the widely-known drugs, l-hyoscyamine and l-scopolamine (*syn.* l-hyoscine). From the former of these bodies, atropine is made commercially by racemization with diluted alkali. The detection and isolation of the individual alkaloids, allied to atropine, which are found in the different plants of this order, have been matters of much difficulty. Several alkaloids occur together in each part of the plant. The alkaloids are readily racemized and decomposed during their separation. The chemical and physical properties of the various members of the series are closely similar. As a consequence, the literature shows much confusion which has arisen from imperfect investigation leading to erroneous identification. Mixtures of alkaloids have been considered to be pure substances, and have been placed upon the market for use by physicians under names such as duboisine and daturine. A study of these solanaceous alkaloids has been made by Mr. J. M. Petrie, D.Sc., whom the Linnean Society of New South Wales has appointed for some ten years past to one of the Research Fellowships founded by the bounty of the late Sir William Macleay.

In 1907 a gardener was admitted to Royal Prince Alfred Hospital, Sydney, with loss of sight occasioned by the entry into his eyes of some juice from a bush that he was pruning. There was full dilatation of the pupil, suggesting the presence of atropine. The shrub was found to be *Solandra longiflora*, which is a native of the West Indies, and has been grown freely in gardens in Australia for its large white trumpet-shaped flowers. An investigation[1] by Dr. Petrie revealed the presence in this plant of an alkaloid which could be split into tropic acid and a basic tropine, and which thus possessed the constitution of a tropëine. This tropëine could not be isolated in a pure form, but a study of its chemical characters showed that it differed from those alkaloids already known. It was named solandrine. The physiological properties of this alkaloid were examined in the Laboratory of Physiology of the University of Sydney. Full dilatation of the pupil of the rabbit's eye was produced by 0.1 mgm. in 20 minutes. The inequality of the pupils could be distinguished four days later. The receptive substance at the terminations of the fibres of the pneumogastric nerve in the frog's heart was paralysed, so that inhibition of the heart beat could not be induced by the application of the electrodes to the trunk of the vagus nerve or to the crescentic junction of the sinus and auricles. The injection of 8 mgm. alkaloid into a dog abolished the secretion of saliva and tears, accelerated the rate of respiration, increased the speed of the heart beat and raised the blood-pressure.

In 1912 Carr and Reynolds published an account[2] of an investigation of the alkaloids of *Scopolia japonica*. In addition to hyoscyamine and scopolamine, they isolated a new alkaloid. They completed with success an examination of its constitution, whereby it was identified as nor-hyoscyamine. They also demonstrated the presence of this new alkaloid in *Duboisia myoporoides*, *Datura metel* and *Datura meteloides*. Dr. Petrie observed that the properties of nor-hyoscyamine, as described by Carr and Reynolds, resembled those of solandrine. He obtained a sufficient supply of the leaves of *Solandra longiflora* through the courtesy of Mr. J. H. Maiden, F.R.S., Director of the Botanic Gardens, Sydney, to permit of the repeated fractional crystallization of the aurichlorides of the alkaloids. He was able to separate the aurichlorides of nor-hyoscyamine, l-hyoscyamine, nor-atropine and atropine.[3] Scopolamine could not be detected. *Solandra longiflora* thus yields nor-hyoscyamine and l-hyoscyamine, of which the former appears to be present in greater amount. The total quantity of alkaloid obtained by Dr. Petrie was 0.17% in the leaves dried at 100° C.

The solanaceous plants containing the tropëines have been carefully studied in recent years to discover those plants from which the various tropëines can be isolated most readily in a pure state. By choosing appropriate species for horticulture, it has become practicable to prepare the different alkaloids on a commercial scale with greater ease.

TRANSFUSION OF BLOOD.

Few procedures in medical practice have suffered more frequent revivals than the infusion of the blood of one animal into another. The idea of replacing unhealthy blood by healthy blood is of great antiquity, and experience from the earliest times has revealed that there is a sound foundation for this procedure. Again, nothing could be more rational than to supply healthy blood to a person depleted of blood by some accidental bleeding. Unfortunately, there are several difficulties associated with the process of transferring blood from one body to another, and not a few dangers. The essentials are that the blood of the donor shall be free from inherent and contaminating micro-organisms, that it shall be delivered in a perfectly fluid state, and that it shall be non-toxic to the recipient. The dangers of embolism, of infection and of poisoning are real, and must be guarded against by special precautions. Recent investigations have demonstrated that the difficulties and dangers can be circumvented to a

[1] *Proceedings Linn. Soc.*, New South Wales, Vol. XXXII., p. 789, 1907.

[2] *Journ. Chem. Soc.*, Vol. CI., p. 946, 1912.

[3] *Proceedings Linn. Soc.*, New South Wales, Vol. XLI., p. 815, 1917.

certain extent, and that transfusion can be rendered a comparatively safe procedure, provided that homologous blood be used. In order that the introduction of the blood of a human being may be transferred to another human being without danger of infection, it is necessary that every reasonable test should be applied to the former, usually spoken of as the donor, so as to exclude the existence of any infective process. With care and a recognition of the possible risks this danger can be rendered practically negligible. It is much more difficult to exclude the possibility of contamination of the blood after withdrawal from the donor and before infusion into the recipient. Many of the methods practised have been directed toward the prevention of air contact of the blood. Direct cannula communication between the vessels of the donor and recipient accomplishes this, but all the means adopted have the one common disadvantage that the amount of blood transferred cannot be accurately measured. Moreover, the donor runs some risk of infection from the recipient, and the necessary close contact between the sick and the healthy individuals carries with it a further disadvantage. Many workers have sought to overcome these defects by withdrawing the blood into a convenient receptacle, and infusing it into the vessels of the recipient. Professor von Ziemssen first used syringes and needles coated with paraffin, so that the contact with the air was minimal. Dr. Halsted preferred to defibrinate the blood, so as to exclude the possibility of the introduction of clots. Considerable success was obtained with this method, but the risk of contamination is great, and in a large proportion of cases some intoxication has been noted. Professor Abel collected the blood from the donor into receptacles containing herudin, which prevented its coagulation. Sodium citrate has also been employed for this purpose. In both methods the blood is usually diluted with physiological saline solution before injection or infusion. Neither of the methods, however, is free from risk of contamination of the blood, and every one who has used them has experienced toxic symptoms, and even deaths, which may be attributed to the grave difficulty of preventing aerial infection. There is, however, no known method which will safeguard against this risk, and since the procedure is undertaken only in case of urgency, the best that can be accomplished is to exercise the utmost care in the hope that the infection may be of small importance. The same disadvantage applies to the method described by Dr. Stewart McKay in this journal,[1] in which he uses sodium citrate to prevent coagulation and infuses the fluid blood through a funnel into the vessels of the recipient.

The methods enumerated all provide against the introduction of clot into the sick man's vessels. The third danger, namely, of inducing a bio-chemical poisoning, is much more intricate. Homologous blood does not produce either anaphylaxis or hæmolysis, and, as far as is known, undissociated blood of one individual does not induce biological reactions in another of the same species. On the other hand, it is the experience of many observers that the blood of certain individuals is incompatible with the blood of another individual. Drs. R. D. McClure and G. R. Dunn[2] deal with the means of ascertaining this incompatibility before the blood is transfused. It appears that they see in the power of the donor's blood to agglutinate the corpuscles of the blood of the recipient an index of this unsuitability for transfusion. A test is carried out by allowing the serum of the blood of the recipient to remain in contact with a weak suspension of the red corpuscles of the donor's blood for ten minutes, and for an hour at incubator temperature. If clumping occurs, the bloods are regarded as incompatible, and another donor has to be chosen. They give the results of 150 transfusions carried out in 80 patients. This precaution was taken, and the blood was kept fluid by the sodium citrate method. Their results were satisfactory, although they experienced undesirable symptoms in many cases, and found the transfusion actually harmful in over 10% of their cases. It was life-saving in 10% and beneficial in 42%. These figures appear to justify the method, in the absence of a more perfect procedure.

[1] *The Medical Journal of Australia*, March 11, 1916, 217.

THE VISION OF PILOTS.

The acuity of vision of pilots and their capability of distinguishing colours from one another are matters of immense public importance. A pilot with defective vision may be the cause of the loss of many lives and the sacrifice of much property. The public has the right to claim that avoidable dangers in connexion with shipping and railway service shall not be run, and they look to ophthalmic surgeons to fix a standard for engine drivers, mariners and pilots which will ensure that obstacles to safety may be seen and recognized at a safe distance, in order that they may be avoided. The wreck of the Royal Mail Steamer *Australia* in 1904 on the Corsair Rock at the Port Phillip Heads, and the grounding of the steamship *Indraghiri* in the same waters, are instances of the risks run by the employment of pilots with defective vision. As a result of the discovery that the pilots in charge of these vessels were possessed of defective vision, a more rigid test was introduced by the Marine Board of Victoria. The tests that have been applied since 1904 require full vision in each eye, but allow a deterioration of 30% in either eye on re-examination. Recently the Board has considered the question of revising the standard of vision. Naturally the pilots resented a severe standard, and representations were made to the Marine Board to have the standard lowered to that of the Board of Trade. A resolution was passed acceding to the men's wishes. As soon as this resolution was made known, the President and Committee of the Eye and Ear Section of the Victorian Branch of the British Medical Association issued a protest against the reduction, on the ground that the Board of Trade standard permitted of dangerous defect of vision. This opinion was therefore communicated to the Elder Brethren of the Trinity House, with the request for an opinion on it. The

[2] *Johns Hopkins Hospital Bulletin*, March, 1917, 99.

reply was most unsatisfactory. It merely contained a statement of the practice obtaining in London, without any justification for fixing a standard which permitted a man with one blind eye and the other eye with 50% vision to be in charge of ships. The Marine Board of Victoria has now to determine the question. The mariners claim that undue hardship is inflicted if a high standard of vision and a rigid colour vision test be employed, while the ophthalmic surgeons of Melbourne and the public press hold that the individual interests of the pilots must be sacrificed to the safety of the travelling community. The Chief Secretary has it in his power to determine the point, and will hear the case presented by the members of a deputation from the Victorian Branch of the British Medical Association. We have no doubt as to the result. No Minister can close his eyes to his duty in safeguarding the public, and a return to the perilously low standard would be an act so dangerous that a responsible man could not support it.

AN INELASTIC LAW.

The Magistrates at the Port Adelaide Police Court regard the law dealing with the limit of speed at which a motor car may be driven as so hard and fast that when Dr. R. E. Magarey explained on April 8, 1917, that he had received a very urgent call on the occasion which was being investigated and drove his car at a speed exceeding the limit along an absolutely empty road, they sympathetically fined the doctor three pounds. Dr. Magarey pressed the Bench for an expression of opinion on a hypothetical case, similar to the one which they had determined. He wished to know whether he would be required by the law to waste ten or twenty minutes unnecessarily by driving at the regulation speed, should he be called in extreme urgency. The Court refused to be drawn, and told Dr. Magarey that while he was attempting to save one life he might be endangering the lives of other persons. Perhaps the Bench may be influenced to deal with cases of this description more in the light of facts than according to possibilities. Doctors recognize the necessity of limiting the speed of motor cars, but in cases of unusual emergency there can be very little risk in pushing a car along at a round pace, if the road is clear and there is no one to be endangered. Provided that there is no one to be run over, the crime of driving a car at a speed exceeding the regulation limit cannot be great, and might in these circumstances be excused.

THE LATE COLONEL FLASHMAN.

Dr. F. W. Kane, of Stanmore, writes:—

Your obituary of Colonel Flashman and the contributions by Colonel MacLaurin and Major Mills, appearing in *The Medical Journal of Australia* of February 24, 1917, are much appreciated.

My reason for writing is to draw attention to the omission of the fact that Colonel Flashman sat for and obtained the Membership of the Royal College of Physicians, London. This was communicated to me in a recent letter of his.

His great loss can only be alleviated by the collective feeling of the many who have suffered in this great world cataclysm, and as Austin Harrision said, writing in May, 1915: "Before we shall have done there will be mourning in every home in the Empire, and we shall be taxed to the uttermost resources of our strength."

THE ADELAIDE CHILDREN'S HOSPITAL.

The Board of Management of the Adelaide Children's Hospital presented their annual report for the year ending September 30, 1916, to the Annual Meeting of Subscribers, which was held on November 6, 1916. The report, together with various information concerning the Hospital, has been published in book form. The report contains an eloquent eulogy on the valuable services which the late Sir Samuel J. Way, Bart., rendered to the institution, in being the prime mover in its foundation nearly 40 years ago, and in conducting its affairs as President during the whole of its existence. For a time, Dr. A. A. Lendon became Acting-President, but in July, 1916, he asked to be relieved of the duties of this office. They also refer in sympathetic terms to the retirement of Dr. Brummitt, on account of ill-health, from the Board. The work has been conducted in an admirable manner, despite the great difficulties, due to the effect of the war on the numerical strength of the medical and nursing staffs, and on the financial condition of the institution.

During the course of the year 1,199 patients were admitted into the wards. There were 62 patients in the Hospital on October 1, 1915, while on the last day of the financial year 92 patients were still under treatment. The number of cots in daily occupation averaged 83. Of the total number of patients under treatment, 208 died. This yields a mortality of 17.1%. The number of those discharged was 961, of whom 707 were cured before being sent out, and 189 relieved. There were 170 patients under treatment for diphtheria without complications, and of these 16 died; while 36 had diphtheria with complications, and 15 died. The total diphtheria mortality was therefore 15.04%. In the list of diseases appended to the report, it is set out that the number of patients discharged after diphtheria was 178, and the number of those who had died of the disease was 34. According to these figures, the mortality would be 10%. Unfortunately, no further information concerning the manner in which these children were treated and the types of diseases present is given. There were 11 cases of broncho-pneumonia, with 2 deaths, *i.e.*, 22.2% mortality, and 85 of lobar pneumonia, with ten deaths, *i.e.*, a case mortality of 11.76%. The number of cases of gastro-enteritis was 155, and the deaths from this condition reached the appalling total of 76. The case mortality was therefore 49.05%. There were 43 cases of meningitis (the nature of the meningeal affection is not stated, although in the body of the report it is stated that there were 70 cases altogether, of which 7 were cerebro-spinal), and of these 23 were fatal. The mortality was consequently 53.49%. There were 17 cases of appendicitis, and no deaths.

The number of operations performed during the year was 273. A very large amount of attendance was given at the Out-patients Department and in the Dispensary.

The work in the Queen Victoria Home for Convalescent Children has continued to be of much value to the patients. This Home is situated at Mount Lofty. It was closed for three months during the winter.

On account of an epidemic of gastro-enteritis, the Board found it necessary to hire a marquee, which was placed on the lawn adjoining the Susanne Ward. The babies were kept in the open air as much as possible, and it is stated that they derived great benefit from this arrangement. The Ward was rendered fly-proof. In all 405 babies were admitted into this infants' ward during the year.

The finances of the institution, including the convalescent home, have suffered in common with other institutions of public utility during the war. The expenditure amounted to £8,116, but included some special items, such as the sum of £517 on surgical instruments, £312 on repairs and £116 on machinery. The income from all sources amounted to £7,423. The deficit was met by using up the credit balance of the previous year, and incurring a debt to the bank of £500.

Abstracts from Current Medical Literature.

DERMATOLOGY.

(121) Multiple Idiopathic Hæmorrhagic Sarcoma.

Parkes Weber (*British Journ. Dermatology*, October-December, 1916) describes three cases of multiple idiopathic hæmorrhagic sarcoma. The patients, who were Jews from Galicia and Russian Poland, presented many features in common. The lesions occurred for the most part on the limbs, and in each there was œdema of the legs. The eruption consisted of bluish or purplish nodules or plaques, of variable size and extent. The Wassermann reaction was negative. Pain was absent, but there was slight pruritus. In one patient the first manifestation of the disease was near a birth-mark on one of the fingers; in another it closely followed upon an injury to the sole of the foot. In the latter, although under observation for 11½ years, there was but slight enlargement of the inguinal and right axillary glands. It could perhaps be attributed to some concominant eczema. The lesions themselves, after this lengthy period, showed retrogression and considerable involution. Pathological examination disclosed in the corium newly-formed dilated blood capillaries, and extravasated blood from ruptured capillaries. Intimately associated with these dilated blood-vessels are groups of oval or spindle-shaped cells, with large nuclei, which are frequently arranged in interlacing bundles. They are cells which have often been regarded as sarcoma cells, but are probably fibroblasts and connective tissue cells, and they represent a new formation of connective tissue element. Gilchrist and Ketron, in a recent paper, concluded that the lesions begin in the skin as angiomata, due to a proliferation and dilatation of the blood capillaries, which are very frail at first and liable to rupture. This is followed by a proliferation of the interstitial connective tissue and endothelium, which gradually obliterates the blood space, forming solid tumours. In the early stages these resemble, in some areas, young connective tissue, in other areas, sarcomata. As the lesions grow older they assume a more fibrous aspect, and may undergo involution. Co-existent with the formation of the tumours there is a sclerosis of the small arteries supplying them, causing a gradual decrease in the amount of blood. To this is due, most likely, their late evolution, as well as involution.

(122) Sclerodermia Circumscripta.

F. Wise and I. Rosen discuss in some detail the essential features and classification of "white spot disease," and give an account of the pathology of the changes met with in this condition (*Journ. Cutan. Diseases*, February, 1917). They find that white spot disease embraces *lichen planus sclerosus* and the sclerodermias. Primary *lichen planus sclerosus* consists in an eruption of flat, white, glistening spots, some of which are slightly elevated. The eruption resembles that of *sclerodermia circumscripta*. Secondary *lichen sclerosus* has the characters of the elementary lesions of *lichen planus* of the Wilson type. Unna described a card-like sclerodermia which is often spoken of as *morphœa guttata*. The white colour is very striking, and is of a chalky nature. Yellowish-grey or pearly grey lesions are met with in sclerodermia, and are very different from the pure white spots seen in certain cases of Unna's condition. Lastly, the lichenoid form of sclerodermia guttata presents many features in common with the foregoing affections. The authors describe a case of the last named condition. The eruption was pearly-grey in colour, glistening, and resembled *lichen planus*. It was obviously a sclerodermia. The papules were discrete in parts and grouped elsewhere. The skin between the papules was retracted or depressed, so that the surface of the papules was level with the normal integument. A close study of the early lesions revealed that the individual lesion started as an achromatic and sclerotic papule. They give a full description of the histopathological appearances of the lesions at various stages in their development, and compare these changes with those met with in *lichen sclerosus*, and the other forms of sclerodermia. They are of opinion that the term *sclerodermia guttata* is inappropriate, since it does not suggest the resemblance to *lichen planus*, and does not indicate any of the of the aberrant clinical features, when compared with ordinary *sclerodermia circumscripta*. They therefore suggest for the condition which they describe the term lichenoid circumscribed sclerodermia.

(123) Livedo Reticularis.

Adamson (*British Journ. Dermatology*, October-December, 1916) draws attention to the fact that Kaposi was the first to use the term "*livedo*" for the purpose of distinguishing local or limited blue colouration of the skin from cyanosis or universal colouration. He noted the influence of cold in the production of this condition, which occurs in the majority of cases on the extremities, but also to a minor degree on the trunk. It appears as circles composed of bluish red or dark blue lines, about two cm. in width. The author states that it serves as a graphic representation of the distribution of the blood supply of the skin. For the purpose of demonstrating this arrangement of the vessels of the skin, Renaut injected Prussian blue, and obtained round blue patches separated by pale tracts, which became coloured on continuing the injection still further. The former he designated "areas of maximum circulation," in which flushing and red patches would be produced by active hyperæmia. The intermediate tracts he called regions of "reduced circulation," in which venous stasis would produce a dusky network, *livedo reticularis*. After reviewing the literature on the subject, and his own records of cases, Adamson concludes that: (1) The dusky marbling or network, known as *livedo annularis*, is a result of the tuft-like arrangement of the blood-vessels of the skin, as demonstrated by Renaut. The network corresponds to the regions of "reduced circulation" between the tufts. (2) It occurs as a normal condition in many children and young adults, and is exaggerated as a result of exposure to cold. (3) In departure from health due to tuberculosis, syphilis, rheumatism, alcoholism, hypothyroidism, etc., the normal *livedo annularis* may become exaggerated and persistent, possibly, as has been suggested, from a toxic action upon the splanchnic plexus. (4) In such persons with persistent and exaggerated *livedo* the position and pattern of eruptions due to syphilis or tuberculosis may be determined by the *livedo*, so that the eruption takes a network aspect, and may be called inflammatory *livedo*. (5) A similar inflammatory *livedo*, with subsequent pigmentation, may be produced by prolonged exposure of the skin to heat—*livedo a calore*. (6) The distribution and arrangement of certain eruptions, such as those of secondary syphilis, or measles, of *parakeratosis variegata*, and perhaps of others, is explained by the anatomical arrangement of the blood-vessels of the skin, which give rise to livedo annularis.

(124) The Treatment of Acne.

R. A. McDonnell holds strongly that acne is caused by intestinal fermentation (*Journ. Cutan. Diseases*, February, 1917). In over 80% of his patients there were symptoms of intestinal fermentation, viz., constipation, distension, headaches, palpitation and dizziness. In some cases, he admits, a counterfeit acne may be produced by certain drugs. Since he holds that intestinal fermentation is the resultant of eating fermentable food and of the inability to prevent these foods from fermenting, he deduces that the proper treatment should consist in withholding potatoes, bread, macaroni, apples, bananas and nuts as well as sweet foods. He claims that there is no specific for acne, and that vaccines can never become specific. Their use must be restricted to the endeavour to control the formation of pus in the lesions. The teeth should be put in order and anti-fermentative drugs should be given. He is strongly in favour of the application of sunlight and fresh air in the treatment of this condition. Drying and exfoliating lotions, such as sulphur, mercury, etc., and X-rays are useful in attacking the local condition.

(125) Idiopathic Infantile Osteopsathyrosis.

Edward S. Blaine (*Amer. Journ. Röentg.*, September, 1917) divides

osteopsthyrosis into three types—(*a*) fœtal osteopsathyrosis (commonly called *osteogenesis imperfecta*); (*b*) infantile osteopsathyrosis; (*c*) adult osteopsathyrosis. He discusses Kienboech's article on the condition, and deals carefully with the Röntgen ray findings. These include a thinning of the cortex, a lessening of the diameter, though the length of bones are normal; the occurrence of multiple fractures with "ringing," etc. The epiphyses are normal as a rule. In the history it is usually found that a spontaneous fracture is the first evidence of the disease noted. Pain is relatively slight in these cases. At first the bones may appear to be almost normal, but later, the decalcification, as it were, becomes more and more marked. He points out that fœtal rickets, *osteogenesis imperfecta*, is sometimes confused with this condition, and gives a table for comparison of the essential differences. In the next plan the differential diagnosis is carefully drawn between this disease and infantile osteomalicia. Various hypotheses are suggested as to causation. No changes have been detected in the various glands. In all cases there was a noticeable absence of tuberculosis and syphilis. In discussing the treatment, he is unable to point to a specific means of cure.

(126) Roentgen Ray Treatment of Tuberculosis Peritonitis.

Paul Eisen (*Amer. Journ. Roentg.*, January, 1917) discusses the progress of eleven cases of tubercular peritonitis treated by deep Röntgen radiation. The diagnosis had been verified prior to treatment by operation in seven of the cases. He points out that the early use of X-rays in such cases soon fell into disuetude, as the technique could not have been satisfactory. In all cases but two there was a great improvement under deep therapy, some patients appearing to have been quite cured. A marked increase in weight was one of the most noticeable features. The average duration of treatment was eight to twelve weeks, extending in one case for eight months. The areas treated varied in size. The dosage varied with the strength of the patient, and was largely controlled by the gain in weight, as well as the effect on the fluid, if present. Hard rays were always employed, usually of a hardness to back up eleven inches.

BIOLOGICAL CHEMISTRY.

(127) Prosphatides in Cow's Milk

T. B. Osborne and A. J. Wakeman have continued their search for new constituents in cow's milk (*Journ. Biol. Chemistry*, December, 1916). The distribution of the phosphatides has been studied in the present paper. Both monoamino and di-amino phosphatides occur in small amount in milk. These substances have been found associated with the proteins of the milk. They cannot be detected in the fats separated by spinning milk in the centrifuge, nor can they be isolated from the solution of lactose and salts remaining after complete removal of the proteins. The phosphatides can be separated from three fractions of the milk, each of which contains a different protein. Alcohol extracts a mixture of phosphatides from the caseinogen precipitated by the careful addition of hydrochloric acid to skimmed milk. The coagulated protein, known as lactalbumin, and obtained by boiling the filtrate after separation of the caseinogen, is rich in these bodies. The precipitate, produced by neutralizing to phenolphthalein the filtrate after removal of the protein coagulated by heat, yields also a mixture of phosphatides. One litre of whole milk contains about 27 mg. of mixed phosphatides. The caseinogen, weighing about 29 gm., yields about 10 mg. of phosphatides, the "coagulum," weighing about 4.7 gm., yields 12.5 mg. and the precipitate, formed on neutralization and weighing 4.6 gm., yields 4 mg. organic compounds containing phosphorus. The phosphatides thus occur in larger amount in association with the lactalbumin. The suggestion is made that the phosphatides are combined with the proteins as lecith-albumins. The non-protein fractions of milk appear to be free from these bodies.

(128) Calcium and Magnesium in Human Urine.

C. F. Nelson and W. E. Burns have estimated the amounts of calcium and magnesium in the urines of twenty-five persons (*Journ. Biol. Chemistry*, December, 1916). The urines were collected in samples for consecutive 24 hours' periods. The estimations were made by McCrudden's method. The quantities were found to vary considerably. In seventeen samples the calcium was present in larger amount than the magnesium, and in eight the magnesium predominated. The daily output can vary over a wide range. The largest amount of calcium excreted during one day was 0.4875 gm., stated as oxide, and the largest amount of magnesium was 0.416 gm., also measured as oxide. The least amount of calcium was 0.099 gm. and of magnesium 0.118 gm. A series of measurements, lasting over four months, were carried out on three individuals. These determinations showed that the excess of either calcium or magnesium in any individual remained characteristic of the individual. The authors conclude that either calcium or magnesium may predominate in the urine of normal persons.

(129) Iodine in Foods.

R. M. Bonn has examined a number of samples of water and foods for the detection of iodine, since various authorities have supposed that the low supply of iodine in the diet consumed in certain districts was related to the development of goitre (*Journ. Biol. Chemistry*, January, 1917). The author studied the methods of Krauss, Hunter and Kendall for detecting the presence of iodine, and found that the method of Kendall was most satisfactory. With the aid of this method an investigation was made of about fifty samples of foods of vegetable origin, of two natural waters, and of eight samples of salt. A number of determinations were made upon each sample. In the majority of cases no iodine could be detected. A trace of iodine was found in a few samples. The amounts detected were so small that the author regards the presence of iodine in vegetable foods as accidental. No iodine was found in the samples of drinking water and of salt.

(130) Nutritive Value of the Proteins of Wheat, Maize and Oats.

E. V. McCollum, M. Simmonds and W. Pitz have endeavoured to determine whether lysin is the limiting amino-acid in the proteins of wheat, maize and oats (*Journ. Biol. Chemistry*, January, 1917). Some experiments by Osborne and Mendel were considered to prove that maintenance of weight but not growth of an animal could be sustained upon wheat, maize or oats without the addition of the amino-acid, lysin. The authors have found that zein does not supplement the protein mixture of wheat or maize for the growth of young rats. Zein does supplement the protein of oats despite the absence of lysin and tryptophane from zein. Gelatine supplements the mixture of proteins of wheat, although gelatine lacks tryptophane and tyrosin. Although gelatine contains 6% lysin it does not supplement the mixture of the proteins of maize. The authors believe that their success in stimulating the growth of rats was due to the high protein content of their diets rather than to the presence of a sufficiency of certain amino-acids.

(131) Reaction of Cerebro-spinal Fluids.

P. G. Weston has determined the reaction of one hundred and five samples of cerebro-spinal fluid from patients with psychoses (*Journ. Med. Research*, January, 1917). The concentration of the hydrogen ions in each fluid was measured by an indicator method after dialysis of the fluid. The indicator used was phenolsulphonephthalein. The reaction was determined colorimetrically by comparison with a series of control tubes containing fluids of known reaction. The accuracy of this method was controlled by comparison with a gas-chain method. The cerebro-spinal fluids were obtained from patients suffering from organic dementia, dementia precox, imbecility, paresis and manic-depressive conditions. The reactions of the fluids were not found to be influenced by any of these states. The average concentration of the hydrogen ion in the fluids from each group corresponded closely, while the range of variation in each group was extremely small. The average for the whole series did not differ from that obtained in normal persons.

THE RUSSIAN DOCTOR.

During the years of oppression, of recurrent famine, of political injustice and of cruel isolation of the free-thinker in Russia, the medical profession stood firm in its position of intermediary between the masses and the bureaucracy. The peasant, the industrial worker, the tradesman and the small landowner, all found in the doctor a friend, to whom they might turn in the hour of need, a man of sympathy and of fearless support. From a financial point of view, the medical practitioner often shared with the peasantry an insufficient return for honest work. Even in the towns the income of the professional man was often pitiably inadequate. The Russian practitioner does not claim a fee; he sends no accounts to his patients. When he visits a sick man, the latter or his relatives place in the doctor's hands a sum of money according to his means. Sometimes no fee is forthcoming, and unless the sympathy of the doctor is aroused on behalf of his patient, no further visit is paid. The patient may send to the doctor and he will then instruct the messenger to tell the patient to continue taking the medicine. The patient understands that this message means that since no fee was paid he does not propose to give any further gratuitous attendance. But as a rule the poor pay a small—a very small—sum willingly, and feel that they remain in the doctor's debt. The rich are dealt with in a different manner, and reasonable or even large fees are often paid in the great cities. The remuneration paid by the management of the larger medical journals to medical men contributing articles is ridiculously small, and the salaries paid by the Government for medical men holding the smaller official positions, such as in the Zemstwos, are in keeping with the general financial position of the medical practitioner in Russia.

Notwithstanding this low rate of remuneration, the medical practitioners in Russia have not found it necessary or advisable to strive for improved conditions of work for themselves. They have recognized throughout the years of misgovernment that the best that can be hoped for would be an improved condition of the general community—a freeing of the masses from the official intrigues and infamous victimization to which they were subjected. The medical practitioners associated with factories and industrial life, the doctors employed by the Government and by the local governing bodies and the private practitioner have vied with one another to secure freedom from the bondage of exaggerated poverty and oppression; freedom from the scourge of insufficient food and lack of enlightenment. The members of the medical profession were practically to a man liberal in their ideas, and, inasmuch as the active spirits aiming at emancipation were the organized, democratic workman and the intelligent radical, there is little wonder that the doctor, who knew the people better than anyone else, who understood the difficulties, who experienced the effect of the bureaucracy, should co-operate with these leaders in the vast, slow-moving revolutions, which convulsed Russia on many, many occasions and which have led to the final overthrow of autocratic and beaurocratic government, with all its attendant evils. As a result of this active partisanship, the oligarchy recognized that the medical profession presented the most dangerous element. There is ample evidence both of the courageous manner in which the doctors have taken this rôle on themselves, and of the fact that the Imperial Government was fully aware of the tendency of the doctors to act despite the official imperiousness. In 1905 resolutions of the most radical nature dealing with the necessity for reform in the provisions against the starving populace, especially in connexion with outbreaks of cholera, were passed. Late in the year 1905, when the political situation was becoming threatening, the doctors formed a huge Medical Union, and organized numerous branches in the various provinces and towns. The Central Council of this Union and the committees of the local branches lost no opportunity in recording their protest against each act of injustice, oppression or violence directed against a member of the medical profession. Each protest called forth a sharp reply from the Government. Many medical men were thrown into gaol without trial and transported thence to the inhospitable northern districts or to Siberia. At times the responsible Government officials found it advisable to deal indirectly with these dangerous exponents of freedom and justice. A paid horde of agents were instructed to find an opportunity to save the Government the trouble and expense of deporting the "politically untrustworthy" doctor. The rabble was never slow to find this opportunity, and the unfortunate marked man learned to his cost what rough handling means. Often he succumbed of the injuries received in this way.

At this time the organizers of the Union were particularly concerned with the working of the Zemstwo arrangements. The Zemstwo medical officers, analogous to our Medical Officers of Health, the District Medical Officers and the Poor Law Medical Officers, found that every attempt to apply preventive measures to cope with epidemics, such as typhus, cholera and enteric fever, and every means which might have been adopted to mitigate the hardships of starvation and sickness among the poorer sections of the peasant class and industrial workers was immediately proscribed by the police, by order of the captain of the township or district or by the representatives of the Imperial Government. The sanitary conditions needed energetic improvement; the machinery of the Zemstwos would have been sufficient to have removed the disabilities, had the authorities agreed to its application. The experience of numerous students of medicine and medical practitioners of deportation to the north and to Siberia awakened a feeling of horror of the vicious inhumanity of the travel and of the exile in places unfitted for human habitation. At first the chief attention of the leaders was directed to an endeavour to remedy the defects near at hand. Later the demand for reform farther afield followed. By November, 1905, the activity of the Medical Union had become widespread, and a large number had already paid full toll. And then began a series of strikes, a great revolt, a counterstroke by the Government, and a temporary defeat of the long-suffering people of Russia. Some details of the part played in that terrible time by the doctors will form a fitting introduction to an account of the activity of the medical profession in its relation to the public health and to the poor.

British Medical Association News.

MEDICO-POLITICAL.

A meeting of the Council of the Tasmanian Branch was held in Hobart on April 12, 1917, for the purpose of receiving the report of the delegates who had waited on the Premier on April 11, 1917, for the purpose of discussing the hospital question.

The delegates reported that the members of the Launceston Hospital Board did not attend, their excuse being that they were too busy. The Premier had refused to commit himself, and consequently no solution of the difficulty had been found.

The Council determined to place before the public the following statement of the position:—

(1) General hospitals all over the world exist for the benefit of those who are unable to pay for private treatment.

(2) Considering the objects of general hospitals to be such, medical men have always gladly given their services, without fee or reward.

(3) For some time past, it has been the practice to admit people into the hospitals of Tasmania who are well able to pay for private treatment.

(4) This practice is inconsistent with the giving of honorary, that is unpaid, services by the visiting medical officers.

(5) The admission of these patients able to pay for private treatment to these hospitals must result in the exclusion of those for whom the hospitals were established.

(6) It is unfair that Government-aided hospitals, supported by the taxpayers, should compete with private hospitals.

(7) The medical men, as far as the Council can ascertain, are not financially interested in any private hospital in or around Hobart.

(8) It is unfair that the poor taxpayer should be called upon to support a hospital for the benefit of the rich.

(9) This matter was first brought to the notice of the Premier in June, 1916, and has been the subject of consideration by deputation and correspondence since then.

(10) In November, 1916, the Premier stated that he was not averse to rich people receiving treatment at the general hospitals; again at the Conference held on 11th instant he repeated that he would not commit himself "to a policy that well-to-do patients should not be admitted to State-aided hospitals."

In view of the above, the Tasmanian Branch of the British Medical Association has decided that the resignations of the Honorary Medical Officers must take effect.

Dr. Elise Vivian Pascoe, of the Hospital, Callan Park, has been nominated for election as a member of the New South Wales Branch of the British Medical Association.

News has been received in Sydney that Captain Vivian M. Rich, R.A.M.C., who graduated at the Sydney University in 1911 has been awarded *le Croix-de-guerre*. Captain Rich is said to have been slightly wounded on Christmas Day.

Public Health.

THE HEALTH OF VICTORIA.

The following notifications have been received by the Board of Public Health, Victoria, during the week ending April 8, 1917:—

	Metropolitan. Cs.	Dths.	Rest of State. Cs.	Dths.	Total. Cs.	Dths.
Diphtheria	31	2	54	2	85	4
Scarlatina	12	0	23	0	35	0
Enteric Fever	1	0	16	0	17	0
Pulmonary Tuberculosis	18	8	4	1	22	9
Cerebro-spinal Meningitis	1	—	1	—	2	—

THE HEALTH OF QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ending April 7, 1917:—

Disease.	No. of Cases.
Diphtheria	57
Scarlatina	29
Cerebro-spinal Meningitis	21
Pulmonary Tuberculosis	8
Enteric Fever	14
Ankylostomiasis	1
Malaria	1
Puerperal Fever	1
Poliomyelitis	1

THE HEALTH OF SOUTH AUSTRALIA.

The following notifications have been received by the Central Board of Health, Adelaide, for the week ending March 31, 1917:—

	Adelaide. Cs.	Dths.	Rest of State. Cs.	Dths.	Totals. Cs.	Dths.
Pulmonary Tuberculosis	0	4	21	6	21	10
Pertussis	0	1	15	1	15	2
Diphtheria	0	0	11	0	11	0
Enteric Fever	0	0	4	0	4	0
Scarlatina	1	0	1	0	2	0
Cerebro-spinal Meningitis	0	0	1	0	1	0
Erysipelas	0	0	1	0	1	0
Morbilli	0	0	1	0	1	0

THE HEALTH OF AUCKLAND.

The following notifications have been received by the District Health Officer, Auckland, New Zealand, during the three months of January, February and March, 1917:—

	City. Cases.	Suburbs. Cases.	Country Districts. Cases.	Total. Cases.
Scarlatina	8	27	101	136
Diphtheria	26	29	71	126
Enteric Fever	10	11	100	121
Pulmonary Tuberculosis	28	17	41	86
Septicæmia	4	5	4	13
Cerebro-spinal Meningitis	1	0	2	3
Poliomyelitis	1	0	1	2
Ophthalmia Neonatorum	3	0	2	5
Trachoma	2	1	0	3

INSANITY IN VICTORIA.

The Inspector-General of the Insane (Dr. W. Ernest Jones) has submitted the Annual Report of the Lunacy Department of the State of Victoria for the year 1915 to the Hon. the Chief Secretary. The statement contains the usual statistical tables, accounts of the work done in the different Hospitals and Receiving Houses, a report by the Pathologist and a general report by the Inspector-General.

At the end of the year the total number of registered lunatics in Victoria was 5,862, of whom 2,897 were men and 2,965 were women. The increased number for the year was 35. These figures do not include voluntary boarders or cases of mental disorder in soldiers returned from overseas. There were 5,131 persons in the mental hospitals, of whom 2,614 were male and 2,517 female. Those absent on trial leave or boarded out from mental hospitals or licensed houses numbered 655, of whom 271 were male and 384 female. Seventy-six persons remained in the licensed houses, the inmates of which were 12 men and 64 women. The proportion of the insane to the total population was 1 in 241.8. The number of patients admitted to mental hospitals and licensed houses was 852, of whom 726 were admitted for the first time to an institution for the treatment of mental diseases in the State. The relation of the number of admissions to the total number of the population works out at 1 in 1,664. The percentage of recoveries to admissions for the whole State is calculated at 26.7%.

The proportion of male and female insane persons has changed materially since 1891. In 1891 there were 2,090 male and 1,778 female persons; in 1910 there were 2,685 male persons and 2,664 female; in 1911 there were 2,706 male and 2,743 female persons; and in 1915 2,897 male and 2,965 female lunatics. The statistics given by the Government Statist show that the proportion of males to females in the total population was in 1891 110.4 males to 100 females, in 1901 101 males to 100 females and in 1911 99.3 males to 100 females. It must, however, be remembered that the great majority of registered lunatics are over 20 years of age. The masculinity of those persons over 20 was in 1891 in the ratio of 129 males to 100 females, in 1901 as 120 is to 100, and in 1911 as 100 is to 100. The insane thus appear to be distributed among the sexes in proportion to their numbers. For the first time since 1891 the number of women in the mental hospitals exceeds the number of men.

There were on the books of the public mental hospitals on January 1, 1915, 5,729 names. The inmates of the hospitals numbered 5,070, there were 514 persons on probational leave and 145 were boarded out from the hospitals. During the year 686 persons, of whom 371 were males and 315 females, were admitted for the first time, and 138 persons, of whom 63 were males and 75 were females, were readmitted for mental treatment. The total number admitted amounted to 824. During the year 218 patients were discharged as cured, 93 were permitted to leave relieved, and 10 were discharged unimproved. In addition, 461 patients died. There were thus 38 more patients on the books of the mental hospitals at the end of the year. The increased number of inmates of the asylums was 61. A table showing the number of previous attacks among persons admitted during the year 1915 deals with 187 persons. It is impossible to discover the persons referred to in the table as cases admitted to public and private institutions as not first admissions together only number 142. The percentage of recoveries on admissions was 26.5. This figure

is low as compared with those in the years previous to 1900. Such a figure is an index of the opinion of the medical officer in charge of the cases of the condition of the cases. The percentages of recoveries recorded for the years 1891 to 1901 average at 36%, while for the last ten years the average figure is 27%. The change in the figure reveals a different attitude in the alienist towards recovery from mental disorder. The percentage of deaths on the average number resident in the mental hospitals was 8.98. Thirty-six patients escaped during the year, of whom 32 were re-taken.

The principal causes of insanity are stated to be heredity, venereal diseases, alcoholism and congenital defects. These have contributed to insanity in 42.5% of the cases admitted. Heredity was assigned as a cause in 17.1%, venereal diseases in 8.5%, alcoholism in 6.8% and congenital defects in 10.2% of the cases. If these figures are compared with those found in other States marked differences occur. As medical beliefs change, factors are regarded as of more or less importance and figure accordingly in the ætiological facts of certification. The figures for insanity due to venereal diseases in Victoria illustrate this change in belief. In 1905 venereal diseases were stated to have caused 0.54% of the admissions, in 1907 it is assigned to 2% of the cases, in 1911 it appeared on 9% of the certificates. Alcoholism appeared on the certificates in 9.5% of the cases in 1905, in 10.5% for 1910, in 15% for 1913. Since 1912 heredity has been regarded as a more potent factor. Old age was regarded as an exciting or predisposing factor in 12% of the cases admitted.

The ages of the 824 patients admitted to the mental hospitals were distributed as follows: Sixty-nine were under 20 years of age, 138 were between 20 years and 30 years old, 173 between 30 and 40 years, 167 between 40 years and 50 years, 138 between 50 years and 60 years, 79 between 60 years and 70 years, 37 between 70 years and 80 years, and 18 over 80 years old. The birth-places of the patients admitted were stated to be situated in Victoria by 528 persons, in some other British colony by 79 persons, in England by 94 persons, in Scotland by 16 persons, in Ireland by 60 persons, in some European State by 9 persons, and in China by 3 persons.

The forms of mental disorder observed on admission in the patients received in the public hospitals were classified as congenital mental deficiency of the intellectual type with epilepsy in 28 cases and without epilepsy in 53 cases. General paralysis was diagnosed on 68 occasions. Primary dementia was present in 102 persons. Mania was found in 116 cases. Melancholia was present in 124 persons. Delusional insanity was observed in 108 patients. Senile dementia was the condition present in 86 old persons.

The death-rate of 8.98 per 100 patients resident is the highest yet recorded. It is considered to be due to the increased age of the patients. The low mortality in the preceding years had lead to the presence of many elderly patients in the hospitals. Senile conditions account for 12% of the deaths. Seventy-six patients died from general paralysis. Thirty-eight deaths were due to pulmonary tuberculosis and 66 to pneumonia. Colitis caused 20 mortalities. Diseases of the heart and vascular system appeared as the cause of death in 50 patients. One patient, while absent with friends, committed suicide. Two deaths were due to accidents. One of these deaths was caused by the clothes of the patient catching fire from a stove. The other patient was strangled by a strip torn from the cover of the bed.

The cost of maintenance of the Department was £227,421, being £18,230 more than that of the previous year. This increase was mainly due to the higher cost of meat, butter, bread and potatoes. The cost of the Head Office, of the committal and transport of patients, and of boarded-out patients amounted to £8,861. The revenue received from fines and sales and for the care of patients through the Master-in-Lunacy was £24,064. The total value of the produce of the farms and gardens at the various hospitals was £23,843. The average weekly cost per patient was 16s. 2d. Deducting the value of the collections for maintenance the net weekly cost was 14s. 4d. per patient. This was 1s. 2d. per week more than in the previous year. It does not, however, appear that the value of the farm produce is included in this return. This would be equal to about 1s. 6d. each week per patient.

During the year 816 patients were admitted to the receiving houses and wards. There were 50 inmates at the beginning of the year. The number of patients discharged was 254, of whom 231 were cured and 20 relieved. The number transferred to the mental hospitals was 540. Fourteen persons died. Under the amended Act, 90 voluntary boarders were admitted to the receiving houses and licensed institutions. Seventy were discharged cured and 16 certified as insane. The success of this practice seems to be assured. The number of admissions to the licensed institutions was 44. Forty persons were admitted for the first time. Ten patients were discharged as cured and 15 as relieved. Eight died and 16 were transferred to the public hospitals.

Special provisions have been made for the care of soldiers from overseas who are subject to mental disorders. These men are treated under the Special War Mental Treatment Act. They are not certified as insane. One half of the Receiving House at Royal Park has been converted into a Military Mental Hospital. The Inspector-General is the Officr Commanding, and Dr. C. G. Godfrey Medical Officer. The Inspector-General acts as Consultant Alienist to the Hospitals of the Third Military District, and sees every patient in the base hospitals. The new block just completed at Mont Park has been handed over to the Defence Department of the Commonwealth as an auxiliary or convalescent military hospital. Arrangements have also been made to hand over to the military authorities the new block at Mont Park, which is being built to replace Yarra Bend. This will house 750 patients. At the close of the war it will return to its original use. A list is given of 102 members of the staff of the Department who have joined the expeditionary forces. Fifty nurses volunteered, but were not accepted.

Dr. W. A. T. Lind gives a report of the work performed in the pathological laboratory at Royal Park. The autopsies numbered 203. The changes observed emphasized the close association of syphilis with insanity. The cases of general paralysis formed 28% of the total number of deaths, while congenital insanity caused 10% of the deaths. Pathological changes were common in the kidneys, while fibroid degenerations were frequent in the other organs. Enteric fever, which is endemic in the Idiot Cottages at Kew, was prevalent during the summer months. An endeavour was made to control the disease by vaccination.

Vital Statistics.

BRISBANE.

The Government Statistician has issued his report on the vital statistics of Greater Brisbane for the month of January, 1917. The number of births registered in the metropolitan area was 441, 212 being of males and 229 of females. As the estimated population of the district was 161,938 the birth-rate was equivalent to an annual rate of 32.64. The birth-rate was considerably higher than in the corresponding month of the preceding year.

The number of deaths registered during the month was 157. Of these 26 were of children under one year of age and 38 of children under five years of age. The death-rate expressed as an annual rate was 11.64, while the infantile mortality was 5.89 per 1000 births. The total number of illegitimate births was 32; three of the illegitimate infants died within one month of birth.

From the information given concerning the causes of death it appears that some infective disease caused death in 46 instances. There were 16 deaths from pulmonary tuberculosis and one from tuberculosis of the spine, eight deaths from gastro-enteritis, five from epidemic cerebro-spinal meningitis, three from pertussis, two from enteric fever, two from acute bronchitis, and one each from morbilli, diphtheria, septicæmia, simple meningitis, pericarditis, endocarditis, laryngitis, pneumonia and acute nephritis. Diseases of the cardio-vascular system were responsible for 28 deaths including 17 from organic diseases of the heart, and six from cerebral hæmorrhage. There were 18 deaths due to cancer, eight to Bright's disease, one to diabetes, one to goitre and one to alcohol.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A monthly meeting of the Senate of the University of Sydney was held on April 3, 1917, at University Chambers, Phillip Street, Sydney.

Dr. Cecil Purser was unanimously elected to the office of Vice-Chancellor.

The following standing committees were appointed:—

Finance Committee: The Chancellor, the Vice-Chancellor, Judge Backhouse, Mr. W. Knox, Mr. F. Leverrier, and Mr. R. Teece.

Building and Grounds Committee: The Chancellor, the Vice-Chancellor, Judge Backhouse, Mr. P. Board, Mr. F. Leverrier, Sir Thomas Anderson Stuart, Professor Warren, Mr. J. Nangle, and Mr. J. J. C. Bradfield.

Orient Passages Committee: The Chancellor, the Vice-Chancellor, and Professor MacCallum.

Organ Committee: The Chancellor, the Vice-Chancellor, the Honourable Mr. Justice Street, Sir Thomas Anderson Stuart, Professor Fawsitt, and Mr. F. Leverrier.

Macleay Museum Committee: Acting Professors Cotton and Johnston and Professor Wilson.

Museum of Normal and Morbid Anatomy: Sir Thomas Anderson Stuart, Professors Wilson and Welsh.

It was resolved that a special meeting of the Senate for the conferring of degrees be held at the University on April 14, 1917.

The Warden reported the death of Mr. Robert Smith, University Solicitor, and the following resolution was passed:—

That the Senate desires to convey to the relatives of the late Mr. Robert Smith, University Solicitor, an expression of sympathy in their loss, and to place on record its appreciation of his valuable services rendered to the University during the tenure of his office, extending over a period of ten years.

The following recommendations from the Joint Committee for tutorial classes were adopted:—

1. That existing classes be continued for the 1917 session except in such cases as the Director should report for further consideration by the committee.
2. That the Lithgow class receive formal sanction of the Senate.

On the recommendation of the Professor in Engineering, the following post-graduate scholarship was awarded:—Walter and Eliza Hall Engineering Fellowship, Mr. W. H. H. Gibson, B.Sc., B.E.

On the recommendation of the Barker Graduate Scholarship (Mathematics) Committee: Mr. F. T. Peirce, B.Sc.

On the recommendation of the Nicholson Medal for Latin Verse Committee: Mr. S. J. G. Davis, B.A., B.Sc.

The report of the Conjoint Committee for Tutorial Classes was received.

On the recommendation of the University Extension Board, it was resolved that Professor Anderson be appointed a member of the Board in the place of Professor Wood.

On the recommendation of the Faculty of Arts it was resolved:—

1. That a course of lectures in the Theory and History of Education qualifying for the Arts degree be delivered in the evenings; and that the following lecturers be appointed to carry out the work:—
   Dr. P. R. Cole, 40 lectures.
   Mr. T. T. Roberts, 30 lectures.
   Mr. R. G. Cameron, 20 lectures.
2. That the following short courses of lectures in Special Method be instituted, each course to consist of not more than ten lectures. These may not all be required in any single year.
   English: Miss Skillen.
   History: Dr. Cole.
   Classics: Dr. Allen.
   Modern Languages: Mr. Waterhouse.
   Physical Sciences: Mr. White.
   Biological Sciences: Miss Deer.
   Arts: Miss Wark.
   Mathematics: Lecturer to be selected.

The following appointments were made:—(1) On the recommendation of the Professor of Anatomy, as Demonstrators in Anatomy: Dr. N. D. Royle, Dr. Arthur C. R. Todd, Mr. R. A. Dart, Mr. P. L. O'Halloran and Dr. H. C. Rutherford Darling (Tutor). (2) On the recommendation of the Professor of Economics and Commerce: Mr. P. R. Watts, B.A., LL.B., and Mr. F. A. Bland, M.A., LL.B., Lecturers in Public Administration. (3) On the recommendation of the Dean of the Faculty of Medicine, Honorary Instructors in Operative Surgery: Dr. John Flynn and Dr. H. C. Rutherford Darling.

On the recommendation of the Professorial Board, it was resolved to award science research scholarships for a period of one year to the following:—

1. Collins, Marjorie Isabel, B.Sc., in the Department of Botany.
2. Pinkerton, Ethel Carrie, B.Sc., in the Department of Physiology.
3. Playfair, George Israel, in the Department of Zoology and Botany.
4. Smith, Vera Adelaide Irwin, B.Sc., in the Department of Zoology.

On the recommendation of the examiners in the Faculty of Arts it was resolved:—That candidates who have failed to pass the matriculation examination and who have volunteered for active military service abroad, be admitted to matriculation upon production of a certificate showing that they have completed at least six (6) months' service with the Australian or Imperial Expeditionary Forces, provided that the examiners are of opinion that such candidates have shown sufficient merit.

Correspondence.

THE MEDICAL PROFESSION AND THE WAR.

Sir,—Referring to "Senior S.P.'s" remarks on the men who stay at home, making capital out of those who go to the war, I think he has a somewhat exaggerated idea of the situation, and while I will not deny that some of our members may be making money out of other men's patriotism, these may be so very, very small. About 300,000 men have left Australia, and a large number, in addition, are doing home-service work, carrying with it free military attendance.

My experience is that, since way broke out, a very high percentage of one's patients is seeking hospital attention, both general and maternity.

My own case would be, I think, typical of the vast majorfity of us, who, against the grain, are held by force of circumstances to Australia. Two out of four men in this town are away on active service, yet for the first three months of this year my cash takings had dropped a little over 25 per cent. as compared with last year, and I don't know that the other man in the town has increased his income to any marked extent.

With the high increase in the cost of living, it seems to me that the only man in a sound position is the locum, and he, with a few notable exceptions, has not failed to take advantage of the other fellow's patriotism, by raising his fee from £1 1s. to £1 10s. a day, an increase of nearly 50 per cent.

Yours, etc.,

JUNIOR C.P.

March 31, 1917.

Sir,—It is regrettable that the patriotic spirit of last week's meeting should have evaporated without leaving any practical residue; but the whole plan was idealistic and indeed *ultra vires*. What was meant to become a voluntary

act of self-sacrifice becomes, in your own words, a mere "pious recommendation." The question as to whether a medical man should enlist is entirely his own affair; it is a matter for himself and his conscience. He alone knows the intimate personal reasons which may justify his standing back. There never, under any arrangement, can be equality of sacrifice. Do what you will, the worldly and the self-centred will climb into the places vacated by those who, in their own souls, felt the call. War service offers no compensation—financial or professional; it merely gives the satisfaction of duty done, and 25% of the profession here has thought this worth while.

But what irritates one is this: that men foregathered at that meeting, glowing with patriotic fire, to decide what was the duty of those others. If each felt as ardently on the subject as his words conveyed, there should be no need at this late hour to reorganize the profession for war. Example is the best and finest incentive. Has all the patriotic carousal of last week produced a single recruit?

Yours, etc.,

H. M. MORAN.

"Beanbah," 235 Macquarie Street,
Sydney, April 7, 1917.

FURTHER RESTRICTIONS ON INTOXICANTS.

Sir,—I should be glad to see either the Councils or the members generally of the Branches throughout Australia urge upon the Federal Government the desirability of imposing further restrictions on the sale of alcoholic beverages. These restrictions are undoubtedly called for, both in the interests of national efficiency and economy, and for the sake of the returned soldiers, many of whom are becoming victims to the drink habit.

This is not to be wondered at. These men are coming back with their nervous systems all jarred and jangled. They have been through experiences inconceivable to those of us who have remained at home, and their nerves cry out for sedatives and anæsthetics. They are thus in a condition peculiarly susceptible to the seductive effects of alcohol, and a craving for its sedative influence can be much more easily acquired than if they were in a normal state.

Add to this that the chief and only way that many of their friends and admirers have of expressing their appreciation of the returned men's bravery is by offering them drink, and that the possession by the soldier of a considerable sum of money as deferred pay attracts to him all the loafers and hangers-on at the bars, and it will be realized that the path to excess can be made very smooth.

Now, dismissing the idea of national prohibition, which the community has neither the courage nor the self-sacrifice to impose upon itself, is there no practicable means by which this evil can be at least lessened, if it cannot be prevented?

I say without hesitation that the enactment in the Commonwealth of the "Anti-Shouting" or "No-Treating" regulation, which is in force in Great Britain and New Zealand, would go a long way towards bringing about an improved state of affairs. The Federal Government could by a stroke of the pen bring this about. There is no need for Acts of Parliament, because a regulation under the existing War Precautions Act could forbid "shouting" all over Australia, as was done in Great Britain by a regulation under the "Defence of the Realm Act," which confers similar powers on the Government there as are possessed by the Commonwealth Government here by the "War Precautions Act." It would probably be impossible to put a stop entirely to "shouting," but a few heavy penalties would soon reduce it to insignificant dimensions, especially if the fine fell on everyone concerned. I think that the medical profession should give a lead in this matter, knowing, as they do above all others, the disastrous effect of alcohol in shattered nerves and the intimate connexion between drink and venereal disease.

I intend to move at the next meeting of the New South Wales Branch the following resolution:—

> That the Federal Government be urged to follow the precedents of the Imperial and New Zealand Governments, and prohibit the practise of "shouting" throughout the Commonwealth during the war and for a period of six months after the return of the last troops to Australia when peace is concluded.

I hope that some member in each of the other States will move a similar resolution at his Branch, and I should be glad to receive any communications on the subject.

Yours, etc.,

RICHARD ARTHUR.

211 Macquarie Street, Sydney.
(Undated.)

WHERE DOES SYPHILITIC INFECTION TERMINATE?

Sir,—According to the annual report of the Inspector-General of Insane in Victoria, the number of fresh cases of general paralysis of the insane received into the hospitals for the insane in Victoria during the years 1912, 1913, 1914, 1915, are respectively. 76, 88, 83, and 68, practically an average of 78 a year.

Mott states that 3 to 5 per cent. of syphilitic infections develope tabes or general paralysis.

As the figure 79 represents the general paralytics only (there being no record of the number of fresh cases of tabes occurring annually in Victoria), we are entitled to take the higher figure, namly, 5 per cent., to represent the number of cases of general paralysis which develope every year in Victoria.

By a simple sum in arithmetic we can calculate from these figures that there are every year 1580 fresh cases of syphilis in Victoria. On an average, each of these cases will infect or transmit the disease to at least three other individuals, so that Victoria gets 4740 cases of syphilis every year, or 47,400 in ten years. If this line of reasoning be correct (in the rough), it must mean that our whole community in time will gradually become deteriorated unless there is a "statute of limitations" to keep the spirochæte from getting past the second generation, or to prevent the transmission to subsequent generations, not necessarily of the spirochæte, but of a defective tissue. Even if the spirochæte itself is not carried over, is anything of a detrimental nature which might produce obscure nervous or other diseases, transmitted to the third generation? The French school thinks that there is evidence of syphilis being transmitted to the third generation, but English syphilographers will not venture further than to quote their French brethren.

If there is any practitioner at present in attendance on the children of a congenital syphilitic, would it be too much to ask him to record his observations. I am sure they would be read by many to whom this subject is of great interest.

Yours, etc.,

W. A. T. LIND.

Kew, 4/4/17.

ENTERIC FEVER AND SOIL CONTAMINATION.

Sir,—With reference to the above important and highly interesting subject raised by Dr. W. A. T. Lind in the *Journal* recently, might I be permitted to mention the facts surrounding the ætiology of an epidemic of typhoid fever that broke out in the female division of the Hospital for Insane, Kew, at the end of January, 1907, which facts lend strong support to the opinion enunciated so convincingly by Dr. Lind?

During December, 1906, an old water-pipe, running across a yard through which had percolated for many years the soakage from an antedeluvian laundry, was dug up. This yard was on a lower level than, and had a gradual slope from, the laundry buildings. The trench so formed was about 45 yards long and extended directly across the front of a series of twelve single rooms for the accommodation of female patients. The trench was about 18 or 20 yards distant from the entrance to the rooms, and was left unfilled in for two or three weeks. The season was a dry one, the trench lay to the north of the rooms, and the prevailing wind was from the north.

Towards the latter half of the following month, January, 1907, three of the patients occupying the single rooms referred to and a nurse in attendance on them all developed typhoid fever, and a serious and protracted epidemic followed. No recognized case of typhoid had occurred in the

Asylum for years previously. All the ordinary ætiological factors held accountable for outbreaks of typhoid fever, the milk supply, water and food contamination, etc., were carefully taken into review in this epidemic, but none of them seemed to explain satisfactorily the cause of the outbreak; and the several investigators, namely, the Official Visitors (medical men), the local health officer, and the medical officers of the institution came to the conclusion then that the exposure of the sub-soil, supersaturated as it was with fæcal soakage from the old, primitively-worked laundry over a long series of years, in a dry and dusty December, was undoubtedly the source of this particular epidemic of typhoid. I should like to add that it is only within the last year or two that a beginning was made to introduce the sewerage system into Kew Asylum, and another pertinent and interesting fact, which appears to confirm Dr. Lind's contention, was elicited in connexion with the installation of the sewer system. It is this. For at least 12 or 15 years past, perhaps longer, no case of typhoid fever was diagnosed in the male division in Kew Asylum, and it may be assumed that no case occurred. This pleasing record was, however, recently broken. In the latter half of last year the ground, constantly contaminated with excrementitious matter for many years, adjoining the Infirmary and Hospital ward on the male side, was excavated in the course of the sewering operations, and before the work was completed two male patients and an attentant, all connected with the ward, developed typhoid fever, unfortunately with a fatal result in each case. The post-mortem examination in the case of the two male patients confirmed the clinical diagnosis. In these cases also, careful and unbiassed investigation was able to exclude any other probable source of infection than that of the disturbed sub-soil under atmospheric conditions favourable to the revitalization of the long dormant *bacillus typhosus*.

The researches of Drs. Firth and Horrocks, published in the *British Medical Journal* for September 27, 1902, also confirm Dr. Lind's views on the potent influence of the soil in the dissemination of typhoid infection. Their conclusion was that the bacillus typhosus is able to assume a vegetative or saprophytic existence outside the body, that it will live for twenty-five days in dried sand, and that it survives for a considerable time a continuous exposure to sunlight, further, that the bacilli will remain active when allowed to remain in a dried state on clothing for upwards of eighty days.

Yours, etc.,

M. GAMBLE.

Hospital for Insane, Kew,
April 6, 1917.

IS REFORM IN CONSULTING HOURS POSSIBLE?

Sir,—In 1848, just under 70 years ago, a circular was issued in the City of London headed:

> We, the undersigned surgeons, chemists and druggists, anxious to relieve ourselves and assistants from incessant toil, do agree and undertake to abridge the hours of business on the Sabbath Day."

From Sunday, September 3, they agreed to keep their doors locked and all their shutters up between the hours of 11 and 6. The reasons given for this are: "First, because we from experience are convinced that it will relieve us from supplying many unnecessary articles on the Sabbath; next, because we feel we are entitled to enjoy rest on that day which is consecrated to rest for all mankind."

Circumstances have changed much since surgeons had the need to range themselves with chemists and druggists and agree to keep their shop doors locked and their shutters up on Sundays. But medical practitioners are still exposed to unreasonable demands from the public on their time and on the hours properly devoted to rest and recreation. They are the only class in the community which has not benefited by this movement of the times.

In practically every part of Australasia the hours during which pharmacists keep their pharmacies open for the dispensing and supplying of medicines have been greatly curtailed in recent years. Instead of inviting the public to enslave them till 11 p.m. they end their offer of service at 6 p.m.

In several places, indeed, the hour is now fixed at 6 p.m. This applies to the whole of Tasmania, to Christchurch and Dunedin, and several smaller places in New Zealand, and to a few places in Queensland. In Christchurch and Dunedin "all-night" dispensaries have been established, supported by the pharmacists in co-operation, where all urgent medicines can be obtained. In Hobart, for some time after 6 p.m. closing was adopted, pharmacists took it in turns to attend from 7 till 9, but it was soon found that the public did not need the convenience, and the plan was dropped.

The extension of this reform to every part of Australia is delayed by two difficulties. The most important is that medical practitioners still invite patients to consult them till late in the evening, and these patients want their prescriptions dispensed at once. If medical practitioners would agree (1) to curtail their hours of consultation after 6 p.m., or (2) to limit their attention only to those cases which are really urgent, or (3) even to charge an "overtime" fee for late work, like other "workers," the reform would spread in the medical profession and have a much greater chance of becoming universal.

Inquiry (as close as possible by an outsider) has been made in Tasmania and New Zealand to obtain the direct or indirect opinion of medical practitioners in those districts where 6 p.m. closing for pharmacists has been adopted. The opinion is entirely favourable to the change. All agree that the public have not been inconvenienced, while practitioners have benefited by a much decreased demand on their time in the evenings.

Inquiry among medical practitioners in other districts shows that in very many cases those who consult in the evenings can, without any injury, wait until next morning both for the advice and for the medicine prescribed.

Lodge patients are probably the most exacting in these matters. When the closing of a dispensary at 6 o'clock was discussed in Victoria one of the Committee, himself a "worker," said he liked to get home, get clean, and have his tea, and saunter down to the dispensary afterwards. He had no consideration for the dispensers, who, in order that he might enjoy this little relaxation, were kept at work hours after he had finished his day's toil.

In pharmacy, as in every other business, it has been found that after a few weeks the public settle down to the new order of things, and the effect of the change is imperceptible. That the same thing happens in medical practice is proved by the experience of Hobart, Launceston, and Christchurch.

In pharmacy it is found that the change is brought about by those of the younger generation; the elders who have grown old in the old system do not welcome it. The same may be the case with medical practice. It may easily be found that the reform would be first introduced in comparatively small centres, where all the local practitioners are on friendly terms, and agree to co-operate in securing greater relaxation for each other. If the medical practitioners in any district would consult the pharmacists it is almost certain that the latter would be ready to close at 6 p.m., if they knew that the doctors would consult only in real emergencies after that hour, or after 5 p.m. Adequate provision can easily be made for real emergencies.

No change of this kind will be made without much previous consideration, but we should be glad if it were possible to elicit the opinions of medical practitioners in districts of varying character, as to the proportion of the patients who come to them after 5 p.m. who could, without injury, have waited till the next day and the ordinary working hours of all other classes of the community.

It is not for an outsider to suggest what should be done by the profession, but I shall esteem it a courtesy if you will give publicity to this note and invite opinions upon it, in order that the idea may germinate in the minds of medical practitioners.

Yours, etc.,

THE EDITOR,
The Chemist and Druggist of Australasia.

Sydney and Melbourne,
April 4, 1917.

Medical Appointments.

Dr. J. Macdonald Allan has been appointed Acting District Medical Officer and Public Vaccinator at Roebourne, Western Australia, during the absence on leave of Dr. Maunsell.

Dr. O. Arnold has been appointed Resident Medical Officer at the Fremantle Public Hospital.

Dr. Morgan Richards has been appointed District Medical Officer and Public Vaccinator at Merredin, Western Australia.

Dr. Isaac George has been appointed Acting District Medical Officer and Public Vaccinator, at Tambellup, Western Australia.

Dr. T. Ryan has been appointed Medical Officer of Health to the Westonia Road Board, Western Australia, in succession to Dr. J. M. Allan.

Dr. Peter Lalor has been appointed Junior Medical Officer, Hospitals for the Insane, Victoria, on probation for a term of twelve months.

Dr. Charles Mitford Lilley has been appointed Acting Medical Superintendent of the Brisbane General Hospital.

Dr. William Roper has been appointed Government Medical Officer at Ballara, Queensland.

Dr. John Flynn has been appointed Government Medical Officer at Ipswich and Medical Officer to the State Children's Department of Queensland, in the place of the late W. H. von Lossberg.

Dr. Rupert George St. John Naylor has been appointed Acting Medical Superintendent of the Hospital for the Insane, Sunbury, Victoria, during the absence of Dr. R. W. Lethbridge.

Dr. George Elliot Cranstoun has been appointed Medical Officer of Health for the Shire of Tambo, Victoria, in succession to the late Dr. F. S. Bond.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xxiii.

Brisbane Hospital, Junior Resident Medical Officers.

Normanton District Hospital, Medical Officer.

Hospital for Sick Children, Brisbane, Junior Medical Officer.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
TASMANIA. (Hon. Sec., Bellerive, Tasmania.)	Honorary Medical Officers in all State-aided Hospitals in Tasmania.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	Brunswick Medical Institute. Bendigo Medical Institute. Prahran United F.S. Dispensary. Australian Prudential Association Proprietary, Limited. National Provident Association. Life Insurance Company of Australia, Limited. Mutual National Provident Club.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Brisbane United Friendly Society Institute.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	The F.S. Medical Assoc., Incorp., Adelaide.
WESTERN AUSTRALIA. (Hon. Sec., 230 St George's Terrace, Perth.)	Swan District Medical Officer. All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Department of Public Instruction—Appointments as Salaried Medical Officers, with duties which include the treatment of school children. Australian Natives' Association. Balmain United F.S. Dispensary. Canterbury United F.S. Dispensary. Leichhardt and Petersham Dispensary. M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney. Marrickville United F.S. Dispensary. N.S.W. Ambulance Association and Transport Brigade. North Sydney United F.S. People's Prudential Benefit Society. Phœnix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Orange. F.S. Lodges at Parramatta, Penrith, Auburn and Lidcombe. Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wallsend.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, N.Z.

Diary for the Month.

Apr. 21.—Northern Suburbs Med. Assoc. (N.S.W.), Annual.
Apr. 24.—N.S.W. Branch, B.M.A., Med. Politics Committee; Organization and Science Committee.
Apr. 25.—Vic. Branch, B.M.A., Council.
Apr. 25.—Federal Committee of the B.M.A. in Australia, in Sydney.
Apr. 27.—N.S.W. Branch, B.M.A., Branch (Ordinary).
Apr. 27.—S. Aust. Branch, B.M.A., Branch.
May 2.—Vic. Branch, B.M.A., Branch.
May 4.—Q. Branch, B.M.A., Branch.
May 8.—Tas. Branch, B.M.A., Council and Branch.
May 8.—N.S.W. Branch, B.M.A., Ethics Committee.
May 10.—Vic. Branch, B.M.A., Council.
May 11.—N.S.W. Branch, B.M.A., Clinical.
May 12.—S. Aust. Branch, B.M.A., Council.
May 15.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
May 16.—W. Aust. Branch, B.M.A., General.
May 16.—Western Suburbs Med. Assoc. (N.S.W.).
May 18.—Q. Branch, B.M.A., Council.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.